Chapter 4: Summaries of Risk and Preparedness

4 Overview

4.1 Wildland Fire Characteristics

An informed discussion of fire mitigation is not complete until basic concepts that govern fire behavior are understood. In the broadest sense, wildland fire behavior describes how fires burn; the manner in which fuels ignite, how flames develop and how fire spreads across the landscape. The three major physical components that determine fire behavior are the fuels supporting the fire, the topography in which the fire is burning, and the weather and atmospheric conditions during a fire event. At the landscape level, both topography and weather are beyond our control. We are powerless to control winds, temperature, relative humidity, atmospheric instability, slope, aspect, elevation, and landforms. It is beyond our control to alter these conditions, and thus impossible to alter fire behavior through their manipulation. When we attempt to alter how fires burn, we are left with manipulating the third component of the fire environment, the fuels which support the fire. By altering fuel loading and fuel continuity across the landscape, we have the best opportunity to determine how fires burn.

A brief description of each of the fire environment elements follows in order to illustrate their effect on fire behavior.

4.1.1 Weather

Weather conditions are ultimately responsible for determining fire behavior. Moisture, temperature, and relative humidity determine the rates at which fuels dry and vegetation cures, and whether fuel conditions become dry enough to sustain an ignition. Once conditions are capable of sustaining a fire, atmospheric stability and wind speed and direction can have a significant affect on fire behavior. Winds fan fires with oxygen, increasing the rate at which fire spreads across the landscape. Weather is the most unpredictable component governing fire behavior, constantly changing in time and across the landscape.

4.1.2 Topography

Fires burning in similar fuel conditions burn dramatically different under different topographic conditions. Topography alters heat transfer and localized weather conditions, which in turn influence vegetative growth and resulting fuels. Changes in slope and aspect can have significant influences on how fires burn. Generally speaking, north slopes tend to be cooler, wetter, more productive sites. This can lead to heavy fuel accumulations, with high fuel moistures, later curing of fuels, and lower rates of spread. The combination of light fuels and dry sites lead to fires that typically display the highest rates of spread. In contrast, south and west slopes tend to receive more direct sun, and thus have the highest temperatures, lowest soil and fuel moistures, and lightest fuels. These slopes also tend to be on the windward side of mountains. Thus these slopes tend to be “available to burn” a greater portion of the year.

Slope also plays a significant roll in fire spread, by allowing preheating of fuels upslope of the burning fire. As slope increases, rate of spread and flame lengths tend to increase. Therefore, we can expect the fastest rates of spread on steep, warm south and west slopes with fuels that are exposed to the wind.

4.1.3 Fuels

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and home sites (the structures) are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content and continuity and arrangement all have an affect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, “fine” fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease, as surface to volume ratio decreases. Fires in large fuels generally burn at a slower rate, but release much more energy, and burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potentially development of crown fire. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and arrangements. It is the unique combination of these factors, along with the topography and weather, which determine how fires will burn.

The study of fire behavior recognizes the dramatic and often-unexpected affect small changes in any single component has on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, the some of the principles that govern fire behavior have been identified and are recognized.

4.2 Benewah County Conditions

Benewah County is characterized by a relatively mild winters and warm, dry summers. Although infrequent, fires in the forest fuel types present throughout much of the County have the potential to result in large, intense and damaging fires such as the 1910 Fire or the Sundance Fire. Past timber harvest operations have created a mosaic of stand conditions that is evident from almost any viewpoint. The fire risk associated with these activities is highly variable depending on a plethora of factors, some of which include the amount of timber volume removed (i.e. number and size of trees left standing), treatment of slash post-harvest, reforestation success, use of equipment, and many site specific factors such as aspect. Generally, treatment of slash by prescribed burning or pile burning can significantly reduce the risk of intense wildfire by removing hazardous fuels in the understory.

Benewah County has been experiencing some growth, particularly in and around Tensed and St. Maries. At the same time, the number and value of resources at risk is on the increase, as more and more homes are built in the midst of fireprone fuels. Human use is strongly correlated with fire frequency, with increasing numbers of fires as use increases. The combination of frequent ignitions and flammable vegetation has greatly increased the probability that incendiary devices will find a receptive fuel bed, resulting in increased fire frequency. Discarded cigarettes, tire fires, and hot catalytic converters have increased the number of fires experienced along roadways. Careless and unsupervised use of fireworks also contributes their fair share to unwanted and unexpected wildland fires. Further contributing to ignition sources are the debris burners and “sport burners” who use fire to rid ditches of weeds and other burnable materials.

Fire departments within Benewah County have reported a general increase in the number of fires within the county. Although there have been few homes lost to wildland fires in the recent past, the potential is growing. Fire departments feel as though pure luck has been on the side of many homeowners, as more and more fires seem to be controlled at the doorstep of residents' homes. It is quite probable that homes will eventually be lost to wildland fire. However, there are a number of actions that can be taken now that can decrease the probability that these events will occur.

4.2.1 County Wide Potential Mitigation Activities

There are four basic opportunities for reducing the loss of homes and lives to fires. There are many single actions that can be taken, but in general they can be lumped into one of the following categories:

- Prevention
- Education/ Mitigation
- Readiness
- Building Codes

4.2.1.1 Prevention

The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective. Prevention campaigns can take many forms. Traditional "Smokey Bear" type campaigns that spread the message passively through signage can be quite effective. Signs that remind folks of the dangers of careless use of fireworks, burning when windy, and leaving unattended campfires can be quite effective. It's impossible to say just how effective such efforts actually are, however the low costs associated with posting of a few signs is inconsequential compared to the potential cost of fighting a fire.

Slightly more active prevention techniques may involve mass media, such as radio or the local newspaper. Fire districts in other counties have contributed the reduction in human-caused ignitions by running a weekly "run blotter," similar to a police blotter, each week in the paper. The blotter briefly describes the runs of the week and is followed by a weekly "tip of the week" to reduce the threat from wildland and structure fires. The federal government has been a champion of prevention, and could provide ideas for such tips. When fire conditions become high, brief public service messages could warn of the hazards of misuse of fire or any other incendiary devise. Such a campaign would require coordination and cooperation with local media outlets. However, the effort is likely to be worth the efforts, costs and risks associated with fighting unwanted fires.

Fire Reporting: Fires cannot be suppressed until they are detected and reported. As the number and popularity of cellular phones has increased, expansion of the #FIRE program throughout Idaho may provide an effective means for turning the passing motorist into a detection resource.

Burn Permits: The issues associated with debris burning during certain times of the year are difficult to negotiate and enforce. However, there are significant risks associated with the use of fire adjacent to expanses of flammable vegetation under certain scenarios. Fire departments typically observe the State of Idaho Closed fire season between May 10 to October 20. During this time, an individual seeking to conduct an open burn of any type shall obtain a permit to prescribe the conditions under which the burn can be conducted and the resources that need to be on hand to suppress the fire, from a State of Idaho fire warden. Although this is a state-wide

regulation, compliance and enforcement has been variable between fire districts. Tackling this issue is difficult. Typically, the duty falls to the chief of whichever fire protection district the burning is planned for. However, this leads to an increased burden on the fire chiefs, who are already juggling other department obligations with obligations to work and to home. There is also considerable confusion on the part of the public as to when a permit is necessary and the procedure for which to obtain the permit. The best-intentioned citizen may unknowingly break this law for a lack of understanding. Clearly, there is a need to coordinate this process and educate the public.

4.2.1.2 Education

Once a fire has started and is moving toward home or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighting resources will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event.

The majority of the uncultivated vegetation in Benewah County is comprised of timberlands. These fuels tend to be very flammable and can support very fast moving and intense fires. In many cases, homes can easily be protected by following a few simple guidelines that reduce the ignitability of the home. There are multiple programs such as FIREWISE that detail precautions that should be taken in order to reduce the threat to homes, such as clearing timber or cured grass and weeds away from structures and establishing a green zone around the home.

However, knowledge is no good unless acted upon. Education needs to be followed up by action. Any education programs should include an implementation plan. Ideally, funds would be made available to financially assist the landowner making the necessary changes to the home. The survey of the public conducted during the preparation of this WUI Fire Mitigation Plan indicated that approximately 59% of the respondents are interested in participating in this type of an activity.

4.2.1.3 Readiness

Once a fire has started, how much and how large it burns is often dependent on the availability of suppression resources. In most cases, rural fire departments are the first to respond and have the best opportunity to halt the spread of a wildland fire. For many districts, the ability to reach these suppression objectives is largely dependent on the availability of functional resources and trained individuals. Increasing the capacity of departments through funding and equipment acquisition can improve response times and subsequently reduce the potential for resource loss.

In order to assure a quick and efficient response to an event, emergency responders need to know specifically where emergency services are needed. Continued improvement and updating of the rural addressing system is necessary to maximize the effectiveness of a response.

4.2.1.4 Building Codes

The most effective, all be it contentious, solution to some fire problems is the adoption of building codes in order to assure emergency vehicle access and home construction that does not "invite" a fast and intense house fire. Codes that establish minimum road construction standards and access standards for emergency vehicles are an effective means of assuring public and firefighter safety, as well as increasing the potential for home survivability. County building inspectors should look to the fire departments in order to assure adequate minimum standards. Fire districts may want to consider apparatus that may be available during mutual aid events in order that the adopted standards meet the access requirements of the majority of suppression resources. In Benewah County, such standards may be drafted in consultation with the Fire Chiefs in order to assure accessibility is possible for all responding resources.

Coupled with this need is the potential to implement a set of requirements or recommendations to specify construction materials allowed for use in high risk areas of the county. While a resident of Tensed may not put his or her structure at undue risk by the use of wooden decking materials, a shake roof, or wooden siding, the same structure in Fernwood would be at tremendous risk through this practice. The Benewah County Commissioners may want to consider a policy for dealing with this situation into the future as more and more homes are located in the wildland-urban interface.

4.3 Benewah County's Wildland-Urban Interface

Individual community assessments have been completed for all of the populated places in the county. The following summaries include these descriptions and observations. Local place names identified during this plan's development include:

Table 4.1. Benewah County Communities

Community Name	Planning Description	Vegetative Community	National Register Community At Risk?[1]
Benewah	Community	Forestland	No
Chatcolet	Community	Forestland	Yes
Desmet	Community	Rangeland	Yes
Emida	Community	Forestland	Yes
Fernwood	Community	Forestland	Yes
Plummer	Community	Forestland/Rangeland	Yes
Sanders	Community	Forestland/Rangeland	Yes
Santa	Community	Forestland	Yes
St. Joe	Community	Forestland	Yes
St. Maries	City	Forestland	Yes
Tensed	Community	Rangeland	Yes

[1]Those communities with a "Yes" in the National Register Community at Risk column are included in the Federal Register, Vol. 66, Number 160, Friday, August 17, 2001, as "Urban Wildland Interface Communities within the vicinity of Federal Lands that are at high risk from wildfires". All of these communities have been evaluated as part of this plan's assessment.

Site evaluations on these communities are included in subsequent sections. The results of FEMA Hazard Severity Forms for each community are presented in Appendix II.

4.3.1 Mitigation Activities Applicable to all Communities

4.3.1.1 Homesite Evaluations and Creation of Defensible Space

Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Maintaining a lean, clean, green zone within at least 100 feet of structures to reduce the potential loss of life and property is highly recommended. Assessing individual homes in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating the homeowners in techniques for protecting their homes is critical in these environments.

4.3.1.2 Travel Corridor Fire Breaks

Ignition points are likely to continue to be concentrated along the roads and railway lines that run through the county. These travel routes have historically served as the primary source of human-caused ignitions. In areas with high concentrations of resource values along these corridors, fire lines may be considered in order to provide a fire break in the event of a roadside ignition. Access route mitigation can provide an adequate control line under normal fire conditions. Alternatively, permanent fuel breaks can be established in order to reduce the potential for ignitions originating from the main travel roads to spread into the surrounding lands.

4.3.1.3 Power Line Corridor Fire Breaks

The treatment opportunities specified for travel corridor fire breaks apply equally for power line corridors. The obvious difference between the two is that the focus area is not an area parallel to and adjacent to the road, but instead focuses on the area immediately below the infrastructure element. Protection under the high tension power lines is strongly recommended. This may be an opportunity for intensive livestock grazing practices as a tool for reducing fine fuels around significant infrastructure.

4.4 Rangeland Communities in Benewah County

Communities of Tensed and Desmet.

4.4.1 Vegetative Associations

These communities lie in the vegetative ecosystem known as the "Palouse prairie" community. The Palouse bioregion covers approximately 16,000 sq. km of land in northwestern Idaho, southeastern Washington and eastern Oregon encompassing the rolling, fertile hills of the Palouse prairie, as well as the more southerly Camas Prairie and the forested hills and canyonlands of the area's rivers.

Grasslands and meadow-steppe vegetation dominated by grasses are the prototypical vegetation of the Palouse. Woodlands and forests occur in the eastern portion on hills and low mountains. The relatively arid western portion is dominated by grasslands, where bluebunch wheatgrass and Idaho fescue are the most prominent. Meadow-steppe vegetation characterized by Idaho fescue and common snowberry dominates areas with more precipitation; however, these environments are still too dry to support forest vegetation. Approximately 90% of the meadow-steppe as well as the grasslands to the west have been converted to various crop lands.

Agricultural practices have created a patchwork of green, lush vegetation and cured rangeland. This patchwork helps to break the continuity of fuels that are available to burn. Damaging fires

in agricultural lands are infrequent; however, these fuel types could potentially support a very fast-moving albeit, low intensity, fire. Under dry and windy conditions, fires in these vegetative types can burn thousands of acres in a single burning period.

4.4.2 Overall Fuels Assessment

Fuels throughout the rangeland community in Benewah County are quite consistent, dominated primarily by agricultural fields with only a few patches of native prairie remaining. Areas dominated by native grasses and cropland can be described as Fuel Models 1 (FM1). Fires in this fuel type tend to spread rapidly, but burn at relatively low intensities. Where grasses become less consistent, wind is needed to push fires through the bunchgrass. Actual burn time is generally short and burned areas cool quickly after passage of the fire front.

Community Assessments: The majority of homes and structures within the rangeland areas are at low risk of loss to wildland fire. The prevalence of developed agricultural land and grass fuels pose a low threat to homes surrounded by these fuels, as fire typically spreads quickly and burns at relatively low intensities. However, there are a number of individual homes that are at much higher risk to wildland fire loss in the area, largely due to use of highly ignitable materials in home construction, or by lack of defensible space surrounding the home. Home defensibility practices can dramatically increase the probability of home survivability. The amount of fuel modification necessary will depend on the specific attributes of the site. In most cases, maintaining a clean and green lawn or clearing weeds and grasses away from structures is sufficient for protection in lighter fuels. However, considering the high spread rates typical in these fuel types, homes need to be protected prior to fire ignitions, as there is little time to defend a home in advance of a grass and range fire.

4.4.3 Individual Community Assessments

4.4.3.1 Tensed and Desmet

The communities of Tensed and Desmet are located approximately 1 mile apart on the Coeur d'Alene Indian Reservation along U.S. Highway 95 in a small valley bottom created by the Hangman Creek drainage. The area immediately surrounding both communities for roughly 1 mile and extending to the northwest and southeast is primarily used for agricultural purposes. Mary Minerva McCroskey State Park is located to the southwest. This park has fairly steep timbered slopes that continue beyond the Benewah County line. Additionally, an arm of the Clearwater Mountain range rises from the valley several miles to the northeast. Hangman Creek, Andrews Spring Creek, Mission Creek and several other small streams provide limited water resources. Although many residents of these communities live near the town center, there are several larger landowners and individual homes scattered throughout the valley and in outlying areas. Some of these homes abut or mingle with wildland fuels increasing their risk of experiencing a wildland fire.

4.4.3.1.1 Fuels Assessment

The topography of the Clearwater Mountain range rising from the valley varies, but the primary slopes face southwest. McCroskey State Park occupies a small ridge that runs north and south. Ponderosa pine, western larch, grand fir, western red cedar, and Douglas-fir are dominant on these slopes. Much of the expanse of Clearwater Mountains near Tensed and Desmet has been broken up into several ownerships including some state land, national forest, industrial property, and other privately owned parcels. Different land management techniques on these mixed ownerships have led to varied vegetation and fuel types. Much of the mountainsides bordering

this valley are represented by fuel models 8 and 10, which under normal weather conditions tend to support higher intensity ground and surface fires due to greater quantities of dead and down fuels. Occasional “jackpot” burning, crowning, spotting, and torching of individual trees also makes suppression efforts difficult and dangerous for firefighters. A mixture of various logging operations over many years constitutes fuel models 5 and 12 depending on the treatment of slash and the amount of volume left standing. Fires in fuel model 12 are rapidly spreading, high intensity surface and ground fires that are generally sustained until a fuel break or change in vegetation occurs. Fuel model 5 tends to support much less intense surface fires due to lighter fuel loading and a lack of volatile material. Developed agriculture and livestock grazing in the flat, grassy valley creates the conditions for fuel model 1, which tend to support low intensity, fast-moving surface fires. This lower risk area provides not only a fuel break, but also a safety zone for firefighters and residents of Tensed and Desmet.

4.4.3.1.2 Community Risk Assessment

The primary fire risks to the communities of Tensed and Desmet lie within the residences located near timbered slopes and along forest routes leading into the mountains. These residences are commonly tucked into stands of timber on one-way in, one-way out secondary roads or driveways. The lack of a defensible space around homes increases its likelihood of ignition by oncoming wildfires. Residences throughout the area are frequently constructed with wood siding and decks; thus, further increasing their risk of ignition. Current logging activities, annual field burning, and recreational use increase the risk of fire by contributing to potential ignition sources.

The primary access into the area is from U.S. Highway 95, a paved two lane highway that extends to the north and south. Saltice Road, Hangman Creek Road, and Old Sanders Road provide additional escape routes that lead away from these communities in all directions. Most of these roadways are located in areas at low fire risk. Nevertheless, some homes in outlying areas are located on higher risk one-way in, one-way out secondary roads or private driveways that could become threatened by wildland fire. One-way in, one-way out access roads are not only dangerous for firefighters, they also increase the likelihood of residents becoming trapped.

Road names and house numbers are generally present throughout the area, yet many of the bridges in the vicinity of Desmet and Tensed lack adequate signing and weight ratings. Most residences access water and power through personal wells or city water hook ups and above ground power lines. Tensed, Desmet, and rural homes in the surrounding areas are protected by the Tensed Fire Department.

4.4.3.1.3 Potential Mitigation Activities

The communities of Tensed and Desmet are at low risk of wildland fire due to the agricultural development within the valley. However, homes and other structures in outlying areas abutting wildland fuels have significantly higher risk. The high concentration of logging and recreational use in the area also increases the fire risk by contributing to potential ignition sources.

Individual home site evaluations can increase homeowners’ awareness and improve the survivability of structures in the event of a wildfire. Home assessments can address the issue of escape routes and home defensibility characteristics. Creating a defensible space around structures that are at risk can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees nearby or overhanging the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home. Creating and widening turnouts and thinning fuels

along access routes would reduce the risk of residents becoming trapped and increase the responsiveness and safety of suppression vehicles and personnel. Educating homeowners in techniques for protecting their homes is critical in areas where heavy fuels are present.

In general communities in this area should focus on projects that will increase the safety of citizens and property in the event of a wildfire emergency. These projects could include providing signage and weight rating information at all bridge crossings, identifying dead end roads, signing escape routes, and pruning trees around power lines. Setting up a community wide program to keep vegetation around structures and along roadways green and clear of hazardous surface fuels would reduce the potential loss of life and property in the event of a wildfire. Thinning and grazing on public lands near the wildland urban interface can significantly reduce fuel build ups; thus decreasing the likelihood of a wildfire reaching the community. It is also important that people recognize and follow rules concerning campfires and trail restrictions in designated recreation areas.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along both edges of secondary roads or one-way in, one-way out driveways that access structures identified as having risk
4. Sign and provide weight rating information on all bridges and cattle guards on access roads
5. Keep clear lines of communication open with the Idaho Department of Lands and the Coeur d'Alene Tribe
6. Post clear regulations on fire use within recreational areas and provide escape proof fire rings and barbecue pits
7. Remove or prune trees away from power line corridors
8. Identify all dead end roads and drive ways and assess the ability of emergency vehicles to safely access residences
9. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
10. Educate property owners about maintaining a defensible space around homes by thinning trees (particularly diseased or dead trees), pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5 Forestland Communities of Benewah County

This section includes assessments for the communities of Benewah, Chatcolet, Emida, Fernwood, Plummer, Sanders, Santa, St. Joe City, and St. Maries.

4.5.1 Vegetative Associations

Vegetative structure and composition within the northern half of Benewah County is closely related to elevation, aspect and precipitation. Relatively mild and moist environments characterize the undulating topography of the region which transitions from the Palouse prairie

plant communities of the west to the forested ecosystems of the east. These forest communities contain high fuel accumulations that have the potential to burn at moderate to high intensities. Highly variable topography coupled with dry, windy weather conditions typical of the region is likely to create extreme fire behavior conditions.

The transition between developed agricultural land and timberlands occurs abruptly, usually along distinct property boundaries. At higher elevation mountainous regions, moisture becomes less limiting due to a combination of higher precipitation and reduced solar radiation. Vegetative patterns shift toward forested communities dominated by ponderosa pine, western larch, and Douglas-fir at the lower elevations, transitioning to lodgepole pine and grand fir at the higher elevations. Engelmann spruce and western red cedar are commonly found in moist draws and frost pockets. These forested conditions possess a greater quantity of both dead and down fuels as well as live fuels. Rates of fire spread tend to be lower than those in the grass and shrub lands, however, intensities can escalate dramatically, especially under the effect of slope and wind. These conditions can lead to control problems and potentially threaten lives, structures and other valued resources.

As elevation and aspect increase available moisture, forest composition transitions to moisture habitat types. Increases in moisture keep forest fuels unavailable to burn for longer periods during the summer. This increases the time between fire events, resulting in varying degrees of fuel accumulation. When these fuels do become available to burn, they typically burn in mosaic pattern at mid elevations, where accumulations of forest fuels result in either single or group tree torching, and in some instances, short crown fire runs. At the highest elevations, fire events are typically stand replacing, as years of fuel accumulation fuel large, intense wildfire.

Many lower elevation forested areas throughout Benewah County are highly valued for their scenic qualities as well as for their proximity to travel corridors. These attributes have led to increased recreational home development and residential home construction in and around forest fuel complexes. The juxtaposition of highly flammable forest types and rapid home development will continue to challenge the ability to manage wildland fires in the wildland-urban interface.

4.5.2 Overall Fuels Assessment

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and home sites are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content and continuity and arrangement all have an affect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, “fine” fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease, as surface to volume ratio decreases. Fires in large fuels generally burn at a slower rate, but release much more energy, burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potentially development of crown fire. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and

arrangements. It is the unique combination of these factors, along with the topography and weather, which determine how fires will burn.

The study of fire behavior recognizes the dramatic and often-unexpected affect small changes in any single component has on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, the some of the principles that govern fire behavior have been identified and are recognized.

Community Assessments: The majority of homes and structures within and surrounding these communities are along a spectrum from low to moderate to high risk of loss to wildland fire. Individual characteristics of each community and structure dictate the risk factors. The prevalence of tree and shrub fuels pose a moderate to high threat to homes surrounded by these fuels, as fire typically spreads quickly through the grasses but burns at relatively high intensities in the brush and forest tree fuels, especially where declining forest health is a factor. Many homes are at low risk because of the management of fuels in the area immediately surrounding the structures and their access routes. There are a number of individual homes that are at much higher risk to wildland fire loss in the area, largely due to use of highly ignitable materials in home construction, or by lack of defensible space surrounding the home. Home defensibility practices can dramatically increase the probability of home survivability. The amount of fuel modification necessary will depend on the specific attributes of the site. Considering the high spread rates possible in these fuel types, homes need to be protected prior to fire ignitions, as there is little time to defend a home in advance of fire.

4.5.3 Individual Community Assessments

4.5.3.1 Benewah and Alder Creek Flats

The communities of Benewah and Alder Creek Flats are located approximately 12 miles south of St. Maries on the Coeur d' Alene Indian Reservation. Benewah is situated near the middle of the Benewah Valley on the Benewah Road. Alder Creek Flats is roughly 4 miles east of Benewah on Alder Creek Road. Both communities are surrounded by the Clearwater Mountains. Many residences have been built in the flatter valley bottoms created by the Benewah Creek and Alder Creek drainages. These valleys have been developed to a large extent for pasture or agricultural purposes. Nonetheless, there are also many homes scattered along timbered forest routes and one-way in, one-way out roads that lead into the mountains. These structures commonly abut or mingle with wildland fuels. Benewah Creek, Alder Creek, Happy Creek, and several other small streams provide water resources.

4.5.3.1.1 Fuels Assessment

The topography of the Clearwater Mountain range varies due to a multitude of small drainages. Benewah Valley is bordered by east and west aspects, while the slopes rising from Alder Creek Flats face north and south. The forests near the community of Benewah are vegetated by stands of Douglas- fir, grand fir, ponderosa pine, and other conifers. Due to past logging activities, much of the natural mixed conifer forests around the Alder Creek valley have been replaced by "dog-hair" stands of lodgepole pine. Lodgepole pine regeneration is also beginning to encroach on the meadows that define Alder Creek Flats. The Benewah Creek and Alder Creek drainages and surrounding mountains have been broken up into several ownerships; primarily state land, industrial property, and other privately owned parcels. Different land management techniques on these mixed ownerships have led to varied vegetation and fuel types. Much of the area surrounding Benewah and Alder Creek Flats is represented by fuel

models 8 and 10, which under normal weather conditions tend to support higher intensity surface fires due to greater quantities of dead and down fuels. Occasional “jackpot” burning, crowning, spotting, and torching of individual trees also makes suppression efforts difficult and dangerous for firefighters. A mixture of various logging operations over many years constitutes fuel models 5 and 12 depending on the treatment of slash and the amount of volume left standing. Fires in fuel model 12 are rapidly spreading, high intensity surface fires that are generally sustained until a fuel break or change in vegetation occurs. Fuel model 5 tends to support much less intense surface fires due to lighter fuel loading and a lack of volatile material. The flat, grassy valleys are a fuel model 1, which tends to support low intensity, fast-moving surface fires. These lower risk areas provide not only a fuel break, but also safety zones for firefighters and residents.

4.5.3.1.2 Community Assessment

The primary fire risks to the communities of Benewah and Alder Creek Flats lie within the somewhat random scattering of homes and other structures throughout these valleys and surrounding mountains. This not only makes effective fire suppression and protection of structures difficult, it also lessens the safety of residents and personnel by spreading out resources and decreasing the availability of equipment. Although many residences have a reasonable defensible space provided by the valley grasses, some homes are located on timbered slopes and forest routes. These residences are commonly nestled into stands of timber on dead end secondary roads or driveways. The lack of a defensible space around homes increases its likelihood of ignition by oncoming wildfires. Residences throughout the area are mainly constructed with wood siding, roofing, and decking; thus, further increasing their risk of ignition. Heavier fuel loading and steeper topography in these areas increases the chance of an uncontrolled wildfire endangering lives and property. On-going logging operations and recreational use increases the risk of fire by contributing to potential ignition sources. The remoteness of Benewah and Alder Creek Flats coupled with the heavy fuels and lack of alternative escape routes puts residents of these communities at high risk of loss due to a wildfire event.

The primary access into Benewah is from the Benewah Road, a gravel two-lane route that travels through the valley and continues to the north and south. Alder Creek Flats is accessed by the Alder Creek Road either from the Benewah Road or the St. Maries River Road. There are only a few additional escape routes that lead away from these communities including Mutch Creek-Carlin Creek Road, Windfall Pass, and Coon Creek Road; however, some may be restricted throughout parts of the year. Additionally, some of these roads are steep, windy, and narrow making emergency evacuation difficult and dangerous. Most of these forest routes are located in areas at moderate to high fire risk due to the close proximity of continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would become impassable. Signing of unrestricted alternate escape routes would reduce confusion and save time in a wildfire situation. Additionally, many homes are located on high risk one-way in, one-way out secondary roads and/or private driveways that could become threatened by wildland fire. One-way in, one-way out access roads are not only dangerous for firefighters, they also increase the likelihood of residents becoming trapped.

Road names and signs listing homeowners’ names are generally present at road intersections and driveways, yet many of the bridges in the vicinity of Benewah and Alder Creek Flats lack adequate signing and weight ratings. Most residences access water and power through personal wells and above ground power lines. There is no formal structural fire protection in this area; however, the Idaho Department of Lands provides wildland fire protection.

4.5.3.1.3 Potential Mitigation Activities

The communities of Benewah and Alder Creek Flats are at moderate risk of wildland fire due primarily to individual homes being scattered all throughout the surrounding areas. Much of the forestland near these communities has been previously harvested; however, more thinning operations with emphasis on hazardous fuel mitigation would significantly reduce the uncontrolled fire risk to residents. Many of the roads leading into these communities abut continuous wildland fuels and are potentially hazardous for both evacuees and fire suppression personnel and equipment.

Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Home assessments can address the issue of escape routes and home defensibility characteristics. Creating a defensible space around structures can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees nearby or overhanging the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home. Further efforts to thin fuels around the community would help lessen the probability of a wildland fire reaching the town site. Creating and widening turnouts and thinning fuels along access routes would reduce the risk of residents becoming trapped and increase the responsiveness and safety of suppression vehicles and personnel. Educating homeowners in techniques for protecting their homes is critical in areas where heavy fuels are present.

In general communities in this area should focus on small projects that will increase the safety of citizens and property in the event of a wildfire emergency. These projects could include providing signage and weight rating information at all bridge crossings, identifying dead end roads, signing unrestricted escape routes, and thinning and pruning trees around power lines. Setting up a community wide program to keep vegetation around structures and along roadways green and clear of hazardous surface fuels would reduce the potential loss of life and property in the event of a wildfire. Livestock grazing on public lands near the wildland urban interface can reduce fuel build ups; thus decreasing the likelihood of a wildfire reaching the community. It is also important that people recognize and follow rules concerning campfires and trail restrictions in designated recreation areas.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along both edges on applicable sections of Alder Creek Road, Alder Creek Loop, Benewah Road, Windfall Pass, and Mutch Creek-Carlin Creek Road
4. Create a fire resistant buffer along both edges of secondary roads or one-way in, one-way out driveways that access homes identified as having risk
5. Maintain meadows around Alder Creek Flats by periodically removing encroaching tree regeneration
6. Sign and provide weight rating information on all bridges and cattle guards on access roads

7. Create a system to inform residents of wildfires in the area and appropriate evacuation routes
8. Create more and widen turnouts on Alder Creek Road, Mutch Creek-Carlin Creek Road, and Alder Creek Loop
9. Widen and improve road surface of Windfall Pass in order to provide an additional escape route and shorter access route for fire response capabilities on the west side of the county
10. Post signs identifying unrestricted escape routes
11. Remove slash and slash piles from access routes and structures
12. Keep clear lines of communication open with the Idaho Department of Lands, USDA Forest Service, and the Coeur d'Alene Tribe
13. Remove or prune trees away from power line corridors
14. Identify all dead end roads and drive ways and assess the ability of emergency vehicles to safely access residences
15. Remove surface fuels such as slash, natural regeneration, and dead and down wood from harvested areas around the community
16. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
17. Educate property owners about maintaining a defensible space around homes by thinning trees (particularly diseased or dead trees), pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.2 Chatcolet and Heyburn State Park

The recreational community of Chatcolet and the surrounding forest land is part of the Heyburn State Park. Chatcolet is located approximately 1 ½ miles north of State Highway 5 on Heyburn Road. There is a cluster of approximately 55 structures and a campground on the western shore of Chatcolet Lake near the Union Pacific Railroad causeway. These are primarily summer residences located on small lots leased from Heyburn State Park. Although many of these homes and cabins are very close together with large trees nearby or overhanging roofs, park officials have recently conducted a harvest and controlled burn to create a 300 foot buffer zone upslope from structures. This significantly decreases the likelihood of a wildfire threatening lives and structures and creates a fuel break to allow firefighters to more safely and effectively suppress wildland fires.

4.5.3.2.1 Fuels Assessment

The slope rising from the western shore of Chatcolet Lake faces east and is predominantly mature ponderosa pine and Douglas-fir with ninebark, oceanspray, and other shrubs and grasses in the understory. In addition to the buffer zone around the community, park officials have implemented the first stages of a ponderosa pine restoration project throughout the park. The purpose of this project is to restore ponderosa pine stands to a healthier state within their historical range of variability. This includes thinning with emphasis on retaining healthy ponderosa pine, slash removal, and periodic controlled burns to remove brush and regeneration from the understory. Several small parcels throughout the park have already been treated;

however, other project areas are still in various planning stages. Areas that have already been thinned and burned are represented by fuel model 2, which tends to support lower intensity surface fires. Fuel model 10 is more prevalent on untreated areas. This type of fuel complex, under normal weather conditions, generally supports higher intensity ground and surface fires due to greater quantities of dead and down fuels. Occasional "jackpot" burning, crowning, spotting, and torching of individual trees also makes suppression efforts difficult and dangerous for firefighters.

4.5.3.2.2 Community Assessment

The primary fire risk to the community of Chatcolet is the high concentration of recreation activities, including campfires, near the residential site. Homes are reasonably well protected from approaching wildland fires by the 300 foot buffer zone; however, the potential loss of life and property due to fires starting within the community and spreading from home to home is still great. The lack of a defensible space around homes increases its likelihood of ignition by oncoming wildfires. Residences throughout the area are frequently constructed with wood siding, roofing, and decking; thus, further increasing their risk of ignition.

The primary access into the area is from Heyburn Road, a paved two lane route, which travels from State Highway 5, through Heyburn State Park (and Chatcolet), and continues towards Worley. There are several secondary roads running through the residential area that form loops back to Heyburn Road, which provides the only escape routes out of the park.

Road names and house numbers are generally present throughout the area, although some may be difficult to see. Most residences access water and power through personal wells and above ground power lines. This community and surrounding areas are protected by the Heyburn State Park and Idaho Department of Lands Fire Crews.

Heyburn State Park

There are two other small communities that lease land for homes and cabins from Heyburn State Park. The Benewah Lake community is located on the eastern shore of Benewah Lake and is accessed by Benewah Lake Road, a one-way in, one-way out route. Residences in this area are generally mobile homes clustered around recreational facilities near the lake. A buffer from the ponderosa pine stand immediately adjacent to homes to the east has been recently harvested. Additionally, a buffer along north side of the access route is marked for sale and will be harvested in the summer of 2004 as part of the park's fire mitigation and ponderosa pine restoration plan. Currently, homes in this area are at moderate to high fire risk due to heavy fuels, lack of an alternate escape route, and high concentration of recreational use. However, after the restoration project has been completed, this area will be relatively well protected from uncontrolled wildland fire.

The Rocky Point community is located on a small peninsula protruding into Chatcolet Lake. This primarily recreational community is squeezed onto very small lots on the north side of State Highway 5. A narrow one-way loop road provides admittance to homes; however, emergency vehicles may have difficulty safely accessing these residences. A fairly large marina, restroom facility, and interpretive center off the highway attract numerous summer vacationers and recreation users. The public picnic area has been cleared of surface fuels and is kept green, but many of the homeowners have trees abutting and/or overhanging roofs and heavy accumulations of surface fuels surrounding structures. Rocky Point has a fairly high risk of experiencing a wildland fire. Furthermore, the steep slope rising from the south side of the highway is also at high risk of fire due to substantial concentrations of wildland fuels, which could potentially throw fire brands or spread across the road.

4.5.3.2.3 Potential Mitigation Activities

The community of Chatcolet and other communities within the Heyburn State Park are considered to be at moderate risk to the effects of wildfire. The buffer strips around structures in Chatcolet and Benewah Lake significantly reduce the risk of fire for residents. Once the restoration project near the Benewah Lake community has been completed, these residents will be reasonably protected against wildfire. Homes within the Rocky Point residential area have a much higher risk of fire due to heavier fuels and concentrated recreational use.

Many of the homes in Heyburn State Park were constructed with building materials and landscaping techniques unfavorable for protecting them against wildfire. Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Creating a defensible space around structures can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees nearby or overhanging the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home. Assessments of homes can address the issue of escape routes and home defensibility characteristics. Educating homeowners in techniques for protecting their property is critical in areas where heavy fuels are present.

In general these communities and the park should focus on small projects that will increase the safety of citizens and property in the event of a wildfire emergency. These projects could include providing signage and weight rating information at all bridge crossings, identifying dead end roads, signing escape routes, and pruning trees around power lines. Thinning or grazing on public lands near the wildland urban interface can significantly reduce fuel build ups; thus decreasing the likelihood of a wildfire reaching the community. It is also important that people recognize and follow rules concerning campfires and trail restrictions in designated recreation areas.

Chatcolet

Most of the homes around Chatcolet are on small lots with trees and surface fuels adjacent to structures. Recreational activities near the lake and around structures increase the fire risk. Creating a fuel break up slope of the town site significantly reduces the risk of approaching wildfires threatening lives and property.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Maintain previously thinned and burned forest areas by periodically removing accumulated surface fuels and regeneration
3. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
4. Create a fire resistant buffer along both edges on applicable sections of Heyburn Road from State Highway 5 to the Benewah county line and along both edges of secondary roads accessing homes
5. Post clear regulations on fire use within recreational areas and provide escape proof fire rings and barbecue pits
6. Keep clear lines of communication open with Heyburn State Park and the Idaho Department of Lands

7. Create a system to inform residents of wildfires in the area and appropriate evacuation routes
8. Remove slash, regeneration, and other surface fuels from the understory in harvested areas
9. Thin and prune trees away from power line corridors
10. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences, improve access where needed
11. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
12. Educate property owners about maintaining a defensible space around homes near timbered areas by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

Heyburn State Park

Benewah Lake

Homes within the Benewah Lake community are currently at moderate risk of fire; however, this risk will be considerably decreased by the completion of the fire mitigation/ponderosa pine restoration project. Nevertheless, recreational traffic and the lack of an alternate escape route create additional fire hazards.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Complete fire resistant buffer project along the north side of Benewah Lake Road
3. Burn slash remaining in recently created buffer near the community
4. Maintain defensible spaces around homes and structures within the community, which may include thinning, pruning, mowing, etc.
5. Maintain buffer along east side of community by periodically removing accumulated surface fuels and regeneration
6. Create more and widen existing turnouts on Benewah Lake Road
7. Continue construction of Benewah Lake Road to provide at least one additional escape route
8. Keep clear lines of communication open with Heyburn State Park and the Idaho Department of Lands
9. Create a system to inform residents of wildfires in the area and appropriate evacuation routes
10. Thin and prune trees away from power line corridors
11. Post clear regulations on fire use within recreational areas and provide escape proof fire rings and barbecue pits
12. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences

13. Periodically remove slash, regeneration, and other surface fuels from the understory in harvested areas
14. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
15. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

Rocky Point

Many of the homes within the Rocky Point community are at moderate fire risk due to fuel accumulations and intense recreational activity. Furthermore, hazardous fuels up slope of homes create additional wildfire risks. Access to homes by emergency personnel and equipment may also be limited.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along both edges of Rocky Point Loop Road
4. Create a fire resistant buffer on the south side of State Highway 5 bordering Heyburn State Park
5. Remove slash, regeneration, and other surface fuels from the understory in harvested areas
6. Assess the ability of emergency vehicles to access residences
7. Keep clear lines of communication open with Heyburn State Park and the Idaho Department of Lands
8. Create a system to inform residents of wildfires in the area and appropriate evacuation routes
9. Post clear regulations on fire use within recreational areas and provide escape proof fire rings and barbecue pits
10. Create more and widen existing turnouts on Rocky Point Loop Road
11. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
12. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.3 Emida

Emida is a small community located just north of the St. Joe National Forest boundary along State Highway 6. This area can also be accessed by Sanders Road or Charlie Creek Road. The small community of Sanders is approximately 11 miles to the west and St. Maries lies about 14

miles to the north. Many residences are located near the city center in the grassy valley bottom containing the Santa Creek drainage. However, there are a few clusters of homes in higher risk timbered areas along Charlie Creek Road and Hume Creek Road. Additionally, there are many homes along Sanders Road that are nestled into dense timber on private dead end driveways, which places them at very high fire risk. The Santa Creek valley is bordered to the northwest and southeast by mixed conifer forests. Lodgepole pine, ponderosa pine, Douglas-fir, and western white pine are most common near the community. A buffer strip has recently been created by thinning the forest stand directly abutting some homes along the west side of the town. The majority of the slash has been removed from the site; thus, significantly reducing the risk of wildland fire threatening this part of the community. This type of buffer is implemented with the intent that an approaching wildfire will be forced to the ground by the lack of fuels and can then be suppressed more effectively before reaching structures within the community. Emida is characterized as an intermix condition by the wildland-urban interface classification system.

4.5.3.3.1 Fuels Assessment

Several small streams drain into Santa Creek near the townsite; thus, there is a multitude of varying aspects surrounding the valley. The majority of these slopes are fuel models 8 and 10. Fires in these fuel types under normal weather conditions tend to support higher intensity ground and surface fires due to greater quantities of dead and down fuels. Occasional “jackpot” burning, crowning, spotting, and torching of individual trees also makes suppression efforts difficult and dangerous for firefighters. The flat, grassy valley is a fuel model 1, which tends to support low intensity, fast-moving surface fires. This lower risk area provides a fuel break for many residents of Emida.

4.5.3.3.2 Community Assessment

Although the flatter valley bottom provides a buffer for many residents against uncontrolled wildfire, the conditions for potentially severe, high intensity fires such as heavy continuous fuels, steep slopes, and up slope winds are all present in the area. Furthermore, numerous logging operations and recreational activities in the area increase potential ignition sources.

The community of Emida has taken some measures to protect residents from the effects of wildfire. Thinning, pruning, and removing slash from the pine stand abutting some homes on the west side of town significantly reduces the likelihood of an oncoming wildland fire threatening these residents. Many of the homes along Sanders Road are completely surrounded by heavy fuels. Additionally, most of these residences are located on long, dead end private drives. These homes and several others in similar conditions on Charlie Creek Road and Hume Creek Road are at very high risk of wildfire.

The primary access into the area is on State Highway 6, a paved two lane route. Sanders Road, and Charlie Creek Road offer additional escape routes to the west and south. All of these roads are located in areas at moderate to high fire risk due to the close proximity of continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would be impassable.

Many of the homes in the community have been built using wood siding and decking, which is unfavorable for protection against wildfire. Also, some homeowners stack firewood under decks or against structures. Homes built within the grassy valley bottom generally have an adequate defensible space; however, those in outlying areas are commonly adjacent to or within heavier fuels.

Road names and house numbers are generally present throughout the area, yet bridges on many access roads lack adequate signing and weight ratings. Most residences in the area access water and power through personal wells or city water hook ups and above ground power lines. The power line corridor stretching from Emida to Sanders travels through sections of very heavy fuels on the St. Joe National Forest. This corridor has been cut and pruned; however, this area still maintains a very high risk of ignition due to remaining surface fuels and nearby forest fuels. There is no formal structural fire protection in this area; however, the Idaho Department of Lands provides wildland fire protection.

4.5.3.3.3 Potential Mitigation Activities

The community of Emida is at moderate risk of wildland fire due primarily to homes in outlying areas being surrounded by wildland fuels and the potential risk of escape routes being threatened due to forest fuels adjacent to roadways. Sections of the high risk forested area on the west side of the town site have already been thinned and pruned to act as a fuel break to slow approaching wildfires before they reach residences; however, more thinning operations in other areas around the community would significantly reduce the uncontrolled fire risk. All of the roads leading into the area abut continuous wildland fuels and are potentially hazardous for both evacuees and fire suppression personnel and equipment.

Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Home assessments can address the issue of escape routes and home defensibility characteristics. Creating a defensible space around structures can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees nearby or overhanging the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home. Further efforts to thin fuels around the community would help lessen the probability of a wildland fire reaching the town site. Creating and widening turnouts and thinning fuels along access routes would reduce the risk of residents becoming trapped and increase the responsiveness and safety of suppression vehicles and personnel. Educating homeowners in techniques for protecting their homes is critical in areas where heavy fuels are present.

In general communities in this area should focus on small projects that will increase the safety of citizens and property in the event of a wildfire emergency. These projects could include providing signage and weight rating information at all bridge crossings, identifying dead end roads, signing escape routes in residential areas, and pruning trees around power lines. Setting up a community wide program to keep vegetation around structures and along roadways green and clear of hazardous surface fuels would reduce the potential loss of life and property in the event of a wildfire. Thinning and grazing on public lands near the wildland-urban interface can significantly reduce fuel build ups; thus decreasing the likelihood of a wildfire reaching the community. It is also important that people recognize and follow rules concerning campfires and trail restrictions in designated recreation areas.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along both edges of State Highway 6, Sanders Road, and applicable sections of Charlie Creek Road

4. Create a fire resistant buffer along both edges of secondary roads or one-way in, one-way out driveways
5. Maintain previously thinned forested stands near the community by periodically removing accumulated surface fuels and regeneration
6. Sign and provide weight rating information on all bridges and cattle guards on access roads
7. Keep clear lines of communication open with USDA Forest Service and the Idaho Department of Lands
8. Create a system to inform residents of wildfires in the area and appropriate evacuation routes
9. Post clear regulations on fire use within recreational areas and provide escape proof fire rings and barbecue pits
10. Thin and prune trees away from power line corridors
11. Identify all dead end roads and drive ways and assess the ability of emergency vehicles to safely access residences
12. Remove surface fuels such as slash, natural regeneration, and dead and down wood from harvested areas around the community
13. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
14. Educate property owners about maintaining a defensible space around homes by thinning trees (particularly diseased or dead trees), pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.4 Fernwood and Santa

The communities of Fernwood and Santa are located approximately 4 miles apart just north of the St. Joe National Forest boundary on State Highway 3. They are situated in the small valley created by the - River, which is bordered by the Clearwater Mountains to the north, west, and east and the Hoodoo Mountains to the south. Renfro Creek, Crystal Creek, Carpenter Creek, and several other small streams provide ample water resources in addition to the St. Maries River. Although many residents of these communities live near the town center, there are several small clusters of homes along forest roads in outlying areas. Many of these homes are nestled into stands of lodgepole pine or other fuels increasing their risk to fire.

4.5.3.4.1 Fuels Assessment

The communities of Fernwood and Santa are located approximately 4 miles apart just north of the St. Joe National Forest boundary on State Highway 3. They are situated in the small valley created by the St. Maries River, which is bordered by the Clearwater Mountains to the north, west, and east and the Hoodoo Mountains to the south. Renfro Creek, Crystal Creek, Carpenter Creek, and several other small streams provide ample water resources in addition to the St. Maries River. Although many residents of these communities live near the town center, there are several small clusters of homes along forest roads in outlying areas. Many of these homes are nestled into stands of lodgepole pine or other fuels increasing their risk to fire.

4.5.3.4.2 Community Assessment

The primary fire risks to the communities of Fernwood and Santa lie within the residential areas located along timbered forest routes leading into the mountains. These clusters of residences are commonly nestled into stands of timber on dead end secondary roads or driveways. The lack of a defensible space around homes increases its likelihood of ignition by oncoming wildfires. Residences throughout the area are frequently constructed with wood siding and decks; thus, further increasing their risk of ignition. Heavier fuel loading and steeper topography in these areas increases the chance of an uncontrolled wildfire endangering lives and property. Current logging and mining, recreational use, and active railroad system increase the risk of fire by contributing to potential ignition sources.

The primary access into the area is from State Highway 3, a paved two-lane highway that extends to the north and south. There are several additional escape routes on forest roads that lead away from these communities in all directions; however, some may be restricted throughout parts of the year. Most of these forest routes are located in areas at moderate to high fire risk due to the close proximity of continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would become impassable. Signing of drivable alternate escape routes would reduce confusion and save time in a wildfire situation. Additionally, many homes are located on high risk one-way in, one-way out secondary roads and/or private driveways that could become threatened by wildland fire. One-way in, one-way out access roads are not only dangerous for firefighters, they also increase the likelihood of residents becoming trapped.

Road names and house numbers are generally present throughout the area, yet many of the bridges in the vicinity of Fernwood and Santa lack adequate signing and weight ratings. Most residences access through above ground power lines. Fernwood relies on a surface water system from the Adams Creek Watershed as their primary source of water; however, a back up well has also been installed for residences within city limits. Santa depends solely on a municipal well. The Adams Creek Watershed should be given a high priority for potential fire mitigation treatments. Both communities are encompassed by the Fernwood Fire Department district boundaries.

4.5.3.4.2.1 Little Carpenter Creek Road

There are approximately 15-20 homes located along Little Carpenter Creek Road off Forest Route 494. The area surrounding most homes and both sides of the road is dominated by thick lodgepole pine, Douglas-fir, and some Engelmann spruce, western red cedar, and grand fir. A few parcels along the road and nearby slopes have been harvested; however, remaining slash and slash piles increases the fire risk for residents. In addition, dense ladder fuels and mistletoe in the lodgepole pine create a very hazardous situation. Although there are a few marked side roads, the main Little Carpenter Creek Road dead ends near a small cluster of houses with private driveways.

4.5.3.4.2.2 Crystal Creek Mobile Home Park

The Crystal Creek Mobile Home Park is located approximately ¼ of a mile off State Highway 3 on Crystal Creek Road. The majority of the residences are grouped together in a partially thinned lodgepole pine stand. Most of this area is at low risk of fire; however, there is a higher risk area abutting the east end of the park that contains dense surface fuels that extend to the lower slopes of the Clearwater Mountains.

4.5.3.4.2.3 Elkhorn Meadows

Many of the homes in the Elkhorn Meadows subdivision are located near a large meadow that provides a buffer zone against an approaching wildland fire. The ponderosa pine stand east of the meadow has been thinned and had most of the slash removed; thus, the fire risk to homes along Wilson Mountain Road is significantly reduced. However, there are a few homes on a dead end spur road on the south side of the subdivision that lack any defensible space. Not only is there thick timber surrounding the homes and crowding the roadway, but there is also several small log decks next to the road.

4.5.3.4.2.4 Renfro Creek Road and Pokey Creek Road

Renfro Creek Road extends east from Santa through a small valley created by the Renfro Creek drainage. Most of the homes in this area and on the lower slopes are surrounded by meadow grasses or light timber; thus, the fire risk is fairly low. Pokey Creek Road turns north off Renfro Creek Road approximately 1 mile from town. There are many homes along Pokey Creek Road that are adjacent to wildland fuels and accessed by private driveways. This area is a fairly steep south aspect that is dominated by lodgepole pine, ponderosa pine, and Douglas-fir with various brush species, pine regeneration, and grasses in the understory. Pokey Creek Road supposedly loops back to Renfro Creek Road; however, this connection is via a deteriorated, unmaintained trail that will not support passenger vehicles. This combination of factors places residences along this forest route at moderate to high wildland fire risk.

4.5.3.4.2.5 Sheep Creek Road

Sheep Creek Road off State Highway 3 travels southwest of Santa towards Tyson Peak. Much of the area near homes has been converted from forest land to pasture or agricultural land. The main road is restricted by a Potlatch Corporation gate approximately 3 miles from the highway. The forest land to the west of the gate and on the north aspect slope rising from the south side of Sheep Creek has been heavily logged and primarily replanted with pine species. Homes located near Sheep Creek are at moderate fire risk because they are generally accessed by private driveways and many are either adjacent to or intermixed with wildland fuels.

4.5.3.4.3 Potential Mitigation Activities

The communities of Fernwood and Santa are considered to be at moderate risk to the effects of wildfire. Those structures located within the St. Maries River valley are reasonably protected from wildland fire by pastures and agricultural fields and ample water resources provided by the river and several other small drainages. Small subdivisions and individual homes built along forest routes and on the lower slopes are at a significantly higher risk.

Many of the homes in the Fernwood and Santa area were constructed with building materials and landscaping techniques unfavorable for protecting them against wildfire. Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Creating a defensible space around structures can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees nearby or overhanging the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home. Assessments of homes or subdivisions in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating homeowners in techniques for protecting their property is critical in areas where heavy fuels are present.

In general these communities should focus on small to medium size projects that will increase the safety of citizens and property in the event of a wildfire emergency. These projects could include providing signage and weight rating information at all bridge crossings and cattle guards, identifying dead end roads, signing escape routes, and pruning trees around power lines. Thinning or grazing on public lands near the wildland urban interface can reduce fuel build ups; thus decreasing the likelihood of a wildfire reaching the community. It is also important that people recognize and follow rules concerning campfires and trail restrictions in designated recreation areas.

4.5.3.4.3.1 Little Carpenter Creek Road

Homes along Little Carpenter Creek Road are at high risk of experiencing a wildland fire. These residences are surrounded by steep, heavily timbered slopes and access or escape is limited to a single high risk gravel road. Recent harvest operations have left slash piles along the road and near homes, which contributes to hazardous surface fuels. Logging activity in the area also increases potential ignition sources.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
3. Maintain thinned forested stands along applicable sections of roadway and among homes
4. Remove surface fuels such as slash and dead and down wood from harvested areas and along roadways
5. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
6. Create a fire resistant buffer along both edges on applicable sections of Little Carpenter Creek Road and along both edges on applicable sections of secondary roads that are identified as causing risk to homes
7. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
8. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.4.3.2 Crystal Creek Mobile Home Park

Crystal Creek Mobile Home Park is at low risk of wildland fire due to its close proximity to State Highway 3 and lack of fuels near homes. Nevertheless, heavy, continuous fuels along the eastern boundary of the park create some risk for nearby residences.

Recommendations:

1. Maintain thinned stands around homes and along both edges of roadways, including spur road

2. Create a fire resistant buffer along both edges of the road along the eastern boundary of the park and along the north side of the spur road
3. Remove surface fuels and any remaining slash from the understory of thinned areas
4. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
5. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.4.3.3 Elkhorn Meadows

The majority of residences in the Elkhorn Meadows subdivision are at low risk of wildfire. However, the few homes located on the dead end spur road on the south side of the subdivision have significantly higher fire risk. These homes directly abut or mingle with heavy wildland fuels. Logging activity in the area and particularly along the roadway contributes to potential ignition sources, which further increases the fire risk.

Recommendations:

1. Continue construction of spur road to provide at least one additional escape route
2. Create a defensible space around residences on the spur road
3. Create a fire resistant buffer along both edges of spur road
4. Remove surface fuels such as slash and dead and down wood from harvested areas and along roadways
5. Move log decks away from residences and roadways
6. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
7. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.4.3.4 Renfro Creek Road and Pokey Creek Road

There are only a few homes along Renfro Creek Road that are at moderate risk of fire due the close proximity of timbered slopes to structures. The primary concerns in this area are residences on Pokey Creek Road that abut or mingle with heavy fuels or are located on dead end private driveways. The steeper topography and active logging and recreation in the area increases the fire risk by contributing to ignition sources.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.

3. Remove slash, regeneration, and other surface fuels from the understory in harvested areas
4. Create a fire resistant buffer along both edges on applicable sections of Pokey Creek Road and on the north side of Renfro Creek Road between Pokey Creek Road and the last residence
5. Create a thru access on Pokey Creek Road and erect signs clearly identifying it as an escape route (reconstructing the loop connection back to Renfro Creek Road is not feasible due to its location in the creek bottom)
6. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
7. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
8. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.4.3.5 Sheep Creek Road

Many of the homes along Sheep Creek Road are located in areas at low risk due to the agricultural development; however, those homes nearer the creek are generally adjacent to heavier wildland fuels. Additionally, the topography is much steeper in this area and the road dead ends for residents at a Potlatch Corporation gate.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along both edges on applicable sections of Sheep Creek Road
4. Continue construction of Sheep Creek Road to provide at least one additional escape route for residents
5. Remove slash, regeneration, and other surface fuels from harvested areas
6. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
7. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
8. Educate property owners about maintaining a defensible space around homes by thinning trees, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.5 Plummer

Plummer is a small community on the Coeur d'Alene Indian Reservation located approximately 6 miles south of Worley at the intersection of U.S. Highway 95 and State Highway 5. There are many residences located near the community center; however, many homes, farms, and ranches are scattered throughout the area for several miles. Many of these are larger landowners located in the flatter regions known as Minaloosa Valley, Rock Creek Valley, and Lovell Valley. Somewhat isolated islands of forest land separate these areas. Ponderosa pine, Douglas-fir, and other conifers are dominant on the slopes. Some landowners have built homes on the lower slopes abutting or mingling with these wildland fuels. Although the very small drainages of Rock Creek, Little Hangman Creek, and Little Plummer Creek provide some water resources, the closest large water body is Chatcolet Lake approximately 6 miles to the east. Plummer is characterized as an interface condition by the wildland-urban interface classification system.

4.5.3.5.1 Fuels Assessment

The small islands of mountains rising out of the flatter valleys have a multitude of varying aspects, but the primary slopes face northwest and southeast. The majority of these regions are fuel models 8 and 10. Fires in these fuel types under normal weather conditions tend to support higher intensity ground and surface fires due to greater quantities of dead and down fuels. Occasional "jackpot" burning, crowning, spotting, and torching of individual trees also makes suppression efforts difficult and dangerous for firefighters. A mixture of various logging operations over many years constitutes fuel models 5 and 12 depending on the treatment of slash and the amount of volume left standing. Fires in fuel model 12 are rapidly spreading, high intensity surface and ground fires that are generally sustained until a fuel break or change in vegetation occurs. Fuel model 5 tends to support much less intense surface fires due to lighter fuel loading and a lack of volatile material. Developed agriculture and livestock grazing in the flat, grassy valleys creates the conditions for fuel model 1, which tend to support low intensity, fast-moving surface fires. This lower risk area provides not only a fuel break, but also a safety zone for firefighters and residents of Plummer.

4.5.3.5.2 Community Assessment

Although the flatter valley bottoms provide buffers for many residents against uncontrolled wildfire, the conditions for potentially severe, high intensity fires such as heavy continuous fuels, steep slopes, and up slope winds are all present in the Clearwater Mountains to the east of the community. Furthermore, numerous logging operations, annual field burning, and recreational activities in the area increase potential ignition sources.

Heyburn State Park is located approximately 6 miles east of the Plummer. This park annually accommodates numerous summer home vacationers, campers, and some permanent residents. Although park officials are making efforts to reduce the fire risk within the park by thinning and controlled burning, the high recreational activity significantly increases potential ignition sources. Wildfire could easily spread from the park to neighboring forests; thus threatening the community of Plummer.

The Trail of the Coeur d'Alenes is a paved bike path that follows the Union Pacific Railroad's right-of-way from Plummer to the town of Mullan near the Montana border. The section of the trail that falls within Benewah County's borders travels between the community center of Plummer, through Heyburn State Park, and exits the County near the Causeway sportsmen's access site. Much of this part of the trail is bordered by gently rolling grasslands; however, its

path through the park is characterized by dry ponderosa pine and Douglas-fir forest stands. The slopes rising from the path also become much steeper near the park's western boundary; thus, increasing the fire danger. Receptive fuels, slope, and increased human activity along the Trail of the Coeur d'Alenes and throughout Heyburn State Park greatly increases the likelihood of an ignition. Recreators using the trail and structures in and around Chatcolet would be at high risk in the event of a wildfire in the area.

The Coeur d'Alene Tribal Agency is located approximately 3 miles southwest of Plummer on Agency Road. Although there are a few residences in this area, most of the structures are tribal government buildings or other tribal businesses including the Coeur d'Alene Tribal Fire Management Headquarters. Much of this area is surrounded by mature ponderosa pine and Douglas-fir; however, most of the timber near the agency has either been harvested already or is marked for sale. Agricultural development in Lovell Valley directly south of the agency and forest management in the surrounding areas leave this cluster of structures at low to moderate risk of experiencing a wildland fire. A few of the structures on the perimeter of the compound are adjacent to wildland fuels, which places them at somewhat higher fire risk.

Many homes in Plummer and surrounding areas have been built using wood siding, roofing, and decking, which is unfavorable for protection against wildfire. Also, some homeowners stack firewood under decks or against other structures. Homes built within the grassy valley bottoms generally have an adequate defensible space; however, those in more mountainous areas are commonly adjacent to or within heavier fuels. Additionally, many residences are located on long, one-way in, one-way out roads (Agte Road, Parkside, etc.) or private drives.

The primary access into the area is on U.S. Highway 95 or State Highway 5, both of which are paved two lane routes. Plummer Road, Lovell Valley Road, and Minaloosa Road offer additional escape routes traveling in all directions away from the community. Most of these roads are located in areas at low risk of wildland fire due to agricultural development.

Road names are generally present throughout the area, yet bridges on many access roads lack adequate signing and weight ratings. Also, house numbers in some areas seem to be missing or difficult to see. Most residences access water and power through city water hook ups and personal wells and above ground power lines. The community of Plummer and the surrounding area is protected by the Gateway Fire Protection District.

4.5.3.5.3 Potential Mitigation Activities

The community of Plummer is at moderate risk of wildland fire due primarily to homes and other structures in outlying areas abutting wildland fuels and the high concentration of logging and recreational use in the area. Most of the roads accessing the Plummer area are located in low fire risk areas; however, State Highway 5 from St. Maries is at somewhat higher risk due to wildland fuels on the hillside adjacent to the roadway. Nevertheless, this route is located near the bottom of the slope and travels along the south shores of Chatcolet and Benewah Lake.

Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Home assessments can address the issue of escape routes and home defensibility characteristics. Creating a defensible space around structures can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees nearby or overhanging the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home. Further efforts to thin fuels around the community would help lessen the probability of a wildland fire reaching the town site. Creating and widening turnouts and thinning fuels along access routes would reduce the risk of residents becoming

trapped and increase the responsiveness and safety of suppression vehicles and personnel. Educating homeowners in techniques for protecting their homes is critical in areas where heavy fuels are present.

In general, communities in this area should focus on small and moderate size projects that will increase the safety of citizens and property in the event of a wildfire emergency. These projects could include providing signage and weight rating information at all bridge crossings, identifying dead end roads, signing escape routes, and pruning trees around power lines. Setting up a community wide program to keep vegetation around structures and along roadways green and clear of hazardous surface fuels would reduce the potential loss of life and property in the event of a wildfire. Thinning and grazing on public lands near the wildland urban interface can significantly reduce fuel build ups; thus decreasing the likelihood of a wildfire reaching the community. It is also important that people recognize and follow rules concerning campfires and trail restrictions in designated recreation areas.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along the south side of applicable sections of State Highway 5 and along both edges of applicable sections of Agency Road from Plummer to the Coeur d' Alene Tribal Agency
4. Create a fire resistant buffer along both edges of secondary roads or one-way in, one-way out driveways that access structures identified as having risk
5. Create a fire resistant buffer along both edges of applicable sections of the Trail of the Coeur d'Alenes Bike Path
6. Remove brush, slash, and other hazardous fuels from both edges of applicable sections along the Trail of the Coeur d'Alenes Bike Path
7. Sign and provide weight rating information on all bridges and cattle guards on access roads
8. Keep clear lines of communication open with the Idaho Department of Lands, Heyburn State Park, and the Coeur d'Alene Tribe
9. Post clear regulations on fire use within recreational areas and provide escape proof fire rings and barbecue pits
10. Remove or prune trees away from power line corridors
11. Identify all dead end roads and drive ways and assess the ability of emergency vehicles to safely access residences
12. Remove surface fuels such as slash, natural regeneration, and dead and down wood from harvested areas around the community
13. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes

14. Educate property owners about maintaining a defensible space around homes by thinning trees (particularly diseased or dead trees), pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.6 Sanders

Sanders is a small farming community located within the Coeur d'Alene Indian Reservation on Sanders Road approximately 2 miles east of U.S. Route 95 near Tensed. This area can also be accessed by the Sanders Road from Emida or the Old Sanders Road, and from U.S. Route 95. Most of this area is relatively flat and has been converted from forested land to agricultural fields. Few residents actually live near the town site; however, there is a cluster of cabins belonging to a Free Methodist congregation situated in a small clump of mature ponderosa pine on the north side of the road. Although this area is primarily used for agricultural purposes, it is bordered by forested land to the north, south, and east characterizing Sanders as an interface condition by the wildland urban interface classification system.

4.5.3.6.1 Fuels Assessment

There are several small streams flowing through the area, most of which drain into Hangman Creek and continue to travel west into Washington. Sanders sits on a gentle west aspect that becomes much steeper a few miles further east of town. This area is a mixture of agricultural and pasture land and mixed conifer forests; thus, fuel models 1, 8, and 10 best represent this community. Fires in this forest type (fuel model 8 and 10) under normal weather conditions tend to be slow moving ground and surface fires with occasional "jackpot" burning, crowning, spotting, and torching, which can make suppression efforts difficult and dangerous for firefighters. The rate of fire spread in fuel model 1 tends to be governed by the amount of continuous herbaceous fuels that have cured or are nearly cured. These fires are generally fast-moving surface fires.

4.5.3.6.2 Community Assessment

Slopes to the east of Sanders show evidence of numerous past and recent logging operations. Slash and growth of brush and dense regeneration on these sites adds to the amount of surface and dead and down fuels available. Furthermore, the close proximity of recreational activities on the St. Joe National Forest to the east of the town center further increases the fire risk by contributing to potential ignition sources. Although fuel accumulations in these areas could potentially lead to a severe wildland fire, due to its location and agricultural development, it is unlikely that the community would be threatened. However, a few homes in the outlying areas near the timber are at much higher risk.

Many of the homes in the community have been built using wood siding and decking, which is unfavorable for protection against wildfire. Some homeowners also stack firewood under decks or against structures. Nevertheless, large fields surrounding most of the homes in this area provide an adequate defensible space against oncoming wildfires.

The primary access into the area is on Sanders Road, a two lane graveled road from either U.S. Route 95 or Emida. Along most of the route from Emida heavy forest fuels abut both sides of the roadway, which greatly increases its risk of becoming threatened in the event of a wildfire. Several secondary forest routes provide additional potential escape routes including Indian Creek Road and Martin Creek Road. Most of these roads are located in low fire risk areas near the community and towards U.S. Route 95; however, the fire risk significantly increases as forested land along roadways becomes more common to the east. Many of the homes in this

area are located on one-way in, one-way out forest routes or private drives, some of which are bordered by timber. This not only increases the risk of the residents becoming trapped, it is also dangerous for firefighters.

Road names and house numbers are generally present throughout the area, yet bridges on many access roads lack adequate signing and weight ratings. Most residences in the area access water and power through personal wells and above ground power lines. The power line corridor stretching from Emida to Sanders travels through sections of very heavy fuels on the St. Joe National Forest. This corridor has been cut and pruned; however, this area still maintains a very high risk of ignition due to remaining surface fuels and nearby forest fuels. Most of the Sanders area is protected by the Tensed Fire Department.

4.5.3.6.3 Potential Mitigation Activities

The community of Sanders is at low risk of wildland fire due primarily to its agricultural development and nearness to U.S. Route 95. The higher risk forested areas upslope of the community could potentially support a severe wildland fire; however, the likelihood of a fire reaching the community is low. Homes in outlying areas closer to or surrounded by timber are at much higher risk.

Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Home assessments can address the issue of escape routes and home defensibility characteristics. Creating a defensible space around structures can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees nearby or overhanging the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home. Creating and widening turnouts and thinning fuels along access routes would reduce the risk of residents becoming trapped and increase the responsiveness and safety of suppression vehicles and personnel. Educating homeowners in techniques for protecting their homes is critical in areas where heavy fuels are present.

In general, communities in this area should focus on small projects that will increase the safety of citizens and property in the event of a wildfire emergency. These projects could include providing signage and weight rating information at all bridges, identifying dead end roads, signing escape routes in residential areas, and pruning trees around power lines. Setting up a community wide program to keep vegetation around structures and along roadways green and clear of hazardous surface fuels would reduce the potential loss of life and property in the event of a wildfire. Thinning and grazing on public lands near the wildland urban interface can significantly reduce fuel build ups; thus decreasing the likelihood of a wildfire reaching the community. It is also important that people recognize and follow rules concerning campfires and trail restrictions in designated recreation areas.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along both edges of Sanders Road, applicable sections of Moses Mountain Road and Martin Creek Road, and any other secondary roads accessing homes in forested areas

4. Sign and provide weight rating information on all bridges and cattle guards on access roads
5. Keep clear lines of communication open with the Coeur d'Alene Tribe and the Idaho Department of Lands.
6. Post clear regulations on fire use within recreational areas and provide escape proof fire rings and barbecue pits
7. Remove or prune trees away from power line corridors
8. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences, improve access where feasible
9. Remove surface fuels such as slash, natural regeneration, and dead and down wood from harvested areas around the community
10. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
11. Educate property owners about maintaining a defensible space around homes by thinning trees (particularly diseased or dead trees), pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.7 St. Joe City and Ferrel

St. Joe is a small community located approximately 13 miles east of St. Maries on the St. Joe River Road (Primary Forest Route 50) near the confluence of Bond Creek and the St. Joe River. The remnant community of Ferrell is found along the St. Joe City Road approximately ¼ mile north of St. Joe. The primary access into St. Joe (and Ferrell) is by the St. Joe City Road off the St. Joe River Road. The flat valley bottom created by the St. Joe River and the outlet of Bond Creek are dominated by various marsh grasses and black cottonwood trees. Most of the residences in this area have been built near the St. Joe community center and west of town along the river. The valley grasses provide somewhat of a buffer against approaching wildfires; however, wildland fuels directly abut the community on its western side. Additionally, most of the escape routes leading out of the area are bordered by heavy forest fuels. The main components of the overstory in this part of the forest include grand fir, western red cedar, Douglas-fir, Engelmann spruce, and western hemlock. St. Joe is characterized as an intermixed condition by the wildland-urban interface classification system, while Ferrell is considered to be an interface condition.

4.5.3.7.1 Fuels Assessment

Besides Bond Creek, several other small streams drain into the St. Joe River near these communities; thus, there is a multitude of varying aspects surrounding the valley. Nevertheless, most of the homes in St. Joe are situated on a heavily timbered northeast aspect. The majority of the slopes on the south side of the St. Joe River in this area are a fuel model 10. Fires in these fuel types under normal weather conditions tend to support higher intensity ground and surface fires due to greater quantities of dead and down fuels. Occasional "jackpot" burning, crowning, spotting, and torching of individual trees also makes suppression efforts difficult and dangerous for firefighters. The flat, grassy valley is a fuel model 1, which tends to support low intensity, fast-moving surface fires. This lower risk area provides not only a fuel break, but also a safety zone for firefighters and residents of St. Joe.

4.5.3.7.2 Community Assessment

Although the flatter valley bottom provides somewhat of a buffer for many residents against uncontrolled wildfire, the conditions for potentially severe, high intensity fires such as heavy continuous fuels, steep slopes, and up canyon winds are all present in the area. Furthermore, numerous logging operations and recreational activities in the area increase potential ignition sources.

Many of the homes along Grand Avenue through town immediately abut or mingle with heavy fuels. Additionally, some of these residences are located on dead end private drives. Although many of the homes along the river downstream of St. Joe are at low risk, the only road accessing this area is adjacent to continuous wildland fuels on its southern side.

The primary access into St. Joe is on the St. Joe City Road off the St. Joe River Road (Primary Forest Route 50). This road provides the only access across the St. Joe River for several miles. The bridge crossing on the St. Joe City Road is restricted to one lane of travel. Additionally, the wooden bridge on the old railroad bed road, which provides the most direct access into town, is not only very narrow, it also lacks weight rating information and a railing or other protective guide on one whole side. Bond Creek Road, Sly Meadows Road, and the old railroad bed road along the river offer additional escape routes in all directions. All of these roads are located in areas at moderate to high fire risk due to the close proximity of continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would be impassable.

Many of the homes in the community have been built using wood siding, decking, and roofing, which is unfavorable for protection against wildfire. Also, some homeowners stack firewood under decks or against structures. Road names and house numbers are generally present throughout the area, yet bridges on many access roads lack adequate signing and weight ratings. The power line corridors near the community have been cut and pruned; however, this area still maintains a very high risk of ignition due to remaining surface fuels and nearby forest fuels. St. Joe City and Ferrel are not incorporated into the St. Joe Valley Fire Protection District; therefore, there is no formal structural fire protection for these communities. The Idaho Department of Lands does; however, provide wildland fire protection to this area.

4.5.3.7.3 Potential Mitigation Activities

St. Joe and Ferrell are at moderate risk of wildland fire due primarily to homes abutting or being surrounded by wildland fuels and the potential risk of escape routes being threatened due to forest fuels adjacent to roadways. Most of the roads leading into the area abut continuous wildland fuels and are potentially hazardous for both evacuees and fire suppression personnel and equipment.

Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Home assessments can address the issue of escape routes and home defensibility characteristics. Creating a defensible space around structures can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees nearby or overhanging the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home. Efforts to thin fuels around the community would help lessen the probability of a wildland fire reaching the town site. Creating and widening turnouts, thinning fuels, and repairing bridges along access routes would reduce the risk of residents becoming trapped and increase the responsiveness and safety of suppression

vehicles and personnel. Educating homeowners in techniques for protecting their homes is critical in areas where heavy fuels are present.

The communities in this area should focus on small projects that will increase the safety of citizens and property in the event of a wildfire emergency. These projects could include providing signage and weight rating information at all bridge crossings, identifying dead end roads, signing escape routes, and pruning trees around power lines. Setting up a community wide program to keep vegetation around structures and along roadways green and clear of hazardous surface fuels would reduce the potential loss of life and property in the event of a wildfire. Thinning and grazing on public lands near the wildland-urban interface can significantly reduce fuel build ups; thus decreasing the likelihood of a wildfire reaching the community. It is also important that people recognize and follow rules concerning campfires and trail restrictions in designated recreation areas.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along the south side of the old railroad bed road from St. Maries to where it crosses the St. Joe River east of St. Joe
4. Create a fire resistant buffer along both edges of secondary roads or one-way in, one-way out driveways accessing homes in areas identified as having risk
5. Sign and provide weight rating information at all bridges and cattle guards on access roads
6. Keep clear lines of communication open with the Idaho Department of Lands
7. Create a system to inform residents of wildfires in the area and appropriate evacuation routes
8. Create and/or widen existing turnouts on the old railroad bed road
9. Widen one lane bridge on St. Joe City Road and revamp narrow bridge near town on the old railroad bed road to safely handle emergency vehicles and evacuees
10. Post clear regulations on fire use within recreational areas and provide escape proof fire rings and barbecue pits
11. Remove or prune trees away from power line corridors
12. Identify all dead end roads and drive ways and assess the ability of emergency vehicles to safely access residences
13. Remove surface fuels such as slash, natural regeneration, and dead and down wood from harvested areas around the community
14. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
15. Educate property owners about maintaining a defensible space around homes by thinning trees (particularly diseased or dead trees) and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.8 St. Maries

The community of St. Maries is located at the confluence of the St. Maries River and the St. Joe River. This is also the intersection of State Highway 3 and State Highway 5. Cherry Creek, Mutch Creek, and Hell's Gulch provide ample water resources in addition to the St. Joe and St. Maries River. There are also several lakes in the area including Goose Heaven Lake, Benewah Lake, and Bells Lake. Much of the town site is situated in the flat, grassy valley created by the river drainages. Although many residents live near the town center, there are several clusters of homes in outlying areas. Many of these homes are nestled into stands of ponderosas pine or other wildland fuels increasing their risk of experiencing a wildland fire. Furthermore, homes located in the residential area south of the community center, particularly along Pennsylvania Avenue, directly abut or mingle with heavy wildland fuels. Many of the city roads also dead end in this area. Residents located on the St. Maries River Road and Mutch Creek Road are commonly surrounded by heavy wildland fuels and are accessed by long, one-way in, one-way out private drives.

The topography of the mountain ranges rising from the valley differs dramatically within the various drainages. A mixture of ponderosa pine, western larch, grand fir, western white pine, western red cedar, lodgepole pine, and Douglas-fir is dominant near the community. The Coeur d'Alene Indian Reservation boundary runs through the community and continues to the northeast and southwest; thus, the entire area west of St. Maries is part of the reservation. Much of the forested area surrounding the community has been broken up into several ownerships including some state land, industrial property, and privately owned parcels. Some private land owners have active forest management placards (such as "Stewardship Forest" or "Tree Farm") posted on their property, which indicates that they have had their property inspected and have obtained forest management plans written by a professional forester. In many cases this will reduce the fire risk to these homes because these plans generally include potential fire hazard information and nearby or surrounding forest lands may have been actively managed to restore them to a healthier, managed state.

4.5.3.8.1 Fuels Assessment

Different land management techniques on these mixed ownerships have led to varied vegetation and fuel types. Much of the surrounding forests are characterized by fuel models 8 and 10, which under normal weather conditions tend to support higher intensity surface fires due to greater quantities of dead and down fuels. Occasional "jackpot" burning, crowning, spotting, and torching of individual trees also makes suppression efforts difficult and dangerous for firefighters. A mixture of various logging operations over many years constitutes fuel models 5 and 12 depending on the treatment of slash and the amount of volume left standing. Fires in fuel model 12 are rapidly spreading, high intensity surface and ground fires that are generally sustained until a fuel break or change in vegetation occurs. Fuel model 5 tends to support much less intense surface fires due to lighter fuel loading and a lack of volatile material. The flat, grassy valley is a fuel model 1, which tends to support low intensity, fast-moving surface fires. This lower risk area provides not only a fuel break, but also a safety zone for firefighters and residents of St. Maries.

4.5.3.8.2 Community Assessment

The primary fire risks to the community of St. Maries lie within the homes located along timbered forest routes, subdivisions in outlying areas, and homes abutting wildland fuels in the residential area south of the community. Many of these abut or are tucked into stands of timber

on dead end secondary roads or driveways. The lack of a defensible space around homes increases its likelihood of ignition by oncoming wildfires. Residences throughout the area are frequently constructed with wood siding and decks; thus, further increasing their risk of ignition. Heavier fuel loading and steeper topography in these areas increases the chance of an uncontrolled wildfire endangering lives and property. The Potlatch Corporation owns a large lumber and manufacturing mill along the St. Joe River that due to high traffic concentrations and hazardous production processes has an increased potential of ignition, which could spread to surrounding structures and forest land. Additionally, current logging, recreational use, and active railroad system increase the risk of fire by contributing to potential ignition sources.

The primary access into the area is from State Highway 3, which runs north and south or from State Highway 5 from Plummer. These are both paved two-lane highways. There are several additional escape routes on forest roads that lead away from St. Maries in all directions; however, some may be restricted throughout parts of the year. Most of these forest routes are located in areas at moderate to high fire risk due to the close proximity of continuous fuels along the roadway. In the event of a wildland fire, it is likely that one or more of the escape routes would become impassable. Signing of unrestricted escape routes would reduce confusion and save time in a wildfire situation. Additionally, many homes are located on high risk one-way in, one-way out secondary roads and/or private driveways that could become threatened by wildland fire. One-way in, one-way out access roads are not only dangerous for firefighters, they also increase the likelihood of residents becoming trapped.

Many of the homes in the community have been built using wood siding, decking, and roofing, which is unfavorable for protection against wildfire. Also, some homeowners stack firewood under decks or against structures. Efforts have been made by the community to ensure that road names and house numbers are present throughout the area, yet many of the bridges in the vicinity of St. Maries lack adequate signing and weight ratings. Most residences access power through personal above ground power lines. Rochat Watershed provides much of the community with water; however, homes and parks outside the city limits have drilled personal single dwelling wells or multi-home wells. The Rochat Watershed should be given a high priority for potential fire mitigation treatments. This community and surrounding areas are protected by the St. Maries Fire Protection District and the Idaho Department of Lands.

4.5.3.8.2.1 Goose Haven Lake

There are approximately 10-15 homes located around the perimeter of Goose Haven Lake. Most of these residences are found on the eastern shore. Homes near the water are protected by a buffer strip of various marsh grasses. The west aspect slope rising from this side of the lake has been heavily logged with only moderate slash build ups left on the site. Most of the homes in this area are at little risk of experiencing a wildland fire. The fairly gentle slope rising from the north side of the lake is vegetated by a mature ponderosa pine stand with a grass understory. This area is also part of the Coeur d'Alene Tribal Wildlife Mitigation Area. Goose Haven Road loops around the lake and connects with State Highway 3 on both ends.

4.5.3.8.2.2 State Highway 3 (North of St. Maries)

There are many homes along State Highway 3 north of St. Maries. Most are located on short driveways from the highway; however, some have been built on various forest routes leading into the mountains to the north. Homes on the south side of the highway are at low fire risk due to the wet valley grasses. The north side of the highway is characterized by a dry south aspect slope dominated by mature ponderosa pine and Douglas-fir with various brush and grass species in the understory. This area has moderate fire risk.

4.5.3.8.2.3 River Pine Estates

The River Pine Estates are located on the west side of State Highway 3 approximately 2 miles south of town. Rimrock Road is the main entrance into this subdivision. This access road eventually connects with Garden Tract Road, which loops back to the highway. Most of the residences in the River Pine Estates were built on a grassy, low risk knoll overlooking the St. Joe River valley. However, there are several homes on timbered, dead end spur roads that are a much higher risk. Meadow View Road, which accesses homes on the west aspect slope leading down into Thorn Creek, is not only a dead end, but it is also steep with a very sharp switchback and no turnaround area.

4.5.3.8.2.4 Highland Springs

The Highland Springs Road is a loop road stemming from the north side of the St. Maries River Road. This area is characterized by a very steep and dry south to southeast aspect slope. Much of the larger timber has been harvested over the past several decades leaving forest stands in various stages of regrowth. Brush species, including ninebark and oceanspray, are present in thick clumps on most disturbed sites. There is also an abundance of clustered natural regeneration varying in age from 2-3 years to 25-30 years. These dense groups of small diameter saplings are very hazardous because they can act as ladder fuels, which may result in a potentially more destructive crown fire. Access to homes on the Highland Springs Road with emergency vehicles may be limited by the steepness, narrowness, and extremely sharp switchbacks. There are very few turnouts and many of homes are located on private drives that are more than a 90 degree turn from the main road. An active railroad and the St. Maries River Road lie directly at the bottom of the slope, both of which increase the potential for an ignition. Due to the steepness of the slope and the abundance of dry, flammable vegetation and potentially limited access, many of the residences on Highland Springs Road have a relatively high risk of experiencing a wildfire.

4.5.3.8.2.5 Hells Gulch

The area known as Hells Gulch is roughly defined by the Hells Gulch Road, which forms a large loop on the north side of State Highway 3 starting at St. Maries and connecting with the Highway again near the intersection of State Highway 97. Although varied, this area is characterized by a south aspect slope dominated by ponderosa pine, Douglas-fir, grand fir, and western larch with sporadic natural meadows. Many of the homes along Hells Gulch Road are surrounded by pasture with only intermittent patches of timber; thus, significantly reducing their risk of fire. Nevertheless, a few homes and much of the roadway abuts timber type fuels and relatively dense underbrush. Due to the dry, south aspect, and close proximity of hazardous fuels Hells Gulch has a moderate to high risk of experiencing a wildfire. However, it is probable that most structures (and residents) would survive a wildland fire due to the existence of lower risk pastureland surrounding most home sites.

4.5.3.8.2.6 Cassandra Hills

Cassandra Hills Road heads north off State Highway 3 roughly between St. Maries and Goose Heaven Lake. There are many homes scattered along this roadway is it winds its way up the fairly steep, south aspect slope that characterizes most of this area. Near the bottom grand fir, Douglas-fir, western red cedar, and western larch dominate the overstory. As the elevation increases, these relatively thick forest stands transition to a more open ponderosa pine timber type. One of the primary concerns from a fire standpoint is the abundance of dead end spur

roads that access many home sites. The main access, Cassandra Hills Road, may also be limiting for emergency vehicles. This road is very steep with several sharp switchbacks and very few turnouts. Homes located in the Cassandra Hills region are at moderate to high risk of wildfire. Not only does the steep topography and dry fuels make this area hazardous, the location of homes (i.e. intense human activity) and a main travel route at the base of the slope significantly increases the potential for an ignition.

4.5.3.8.2.7 Evergreen Terrace

Evergreen Terrace is a small subdivision on the east side of State Highway 3 approximately 1 ½ miles south of St. Maries. Almost all of the homes in this area are located on a series of dead end roads that lack adequate turnaround areas for emergency vehicles. Although many residences have cleared at least a small defensible space around their homes, much of the surrounding area is dominated by fairly thick ponderosa pine, Douglas-fir, grand fir, and mixed hardwood species. Due to a lack of fire or other management, ladder and surface fuels have become very abundant in the understory. This area is at moderate to high fire risk.

4.5.3.8.2.8 Cherry Creek Road

There are many homes scattered all along Cherry Creek Road in the Cherry Creek drainage approximately 2 ½ miles east of St. Maries on State Highway 5. Some of these homes have been built near the highway in the fairly wide valley bottom and have an adequate defensible space provided by various grasses growing near the creek; however, this draw becomes much narrower and steeper further south. Many of the residences located on the steeper east and west aspect slopes are surrounded by heavy and continuous wildland fuels. These homes are commonly accessed by long, dead end driveways, some of which have narrow bridge crossings. The main Cherry Creek Road becomes a forest route that eventually connects to the Benewah Road; however, thru access may be restricted during parts of the year. Homes in this drainage are at high risk of wildfire due to the steep slopes and heavy fuels.

4.5.3.8.2.9 Shay Hill

Shay Hill is an area approximately 3 miles west of St. Maries on State Highway 5. Homes are scattered all along Shay Hill Road, which climbs a very steep, predominately north aspect slope. A large portion of the timber in this area has been harvested; however, a few homes and sections of road are adjacent to thick stands of mixed conifer timber. The primary concerns in this area are homes on long, dead end driveways, thick timber abutting homes and roadways, and increased surface fuels due to harvest operations. The fire risk to homes on Shay Hill is mixed. Homes in grassy areas with little or no slash residue from recent harvests remain at moderate risk due to the steep topography and high probability of an ignition. Homes located amongst stands of timber or on dead end roads are at significantly higher risk due to fuel availability and lack of emergency access.

4.5.3.8.3 Potential Mitigation Activities

The community of St. Maries is considered to be at moderate to high risk to the effects of wildfire. Those structures located within the St. Joe River valley are reasonably protected from wildland fire by pastures and agricultural fields and ample water resources. Small subdivisions and individual homes built along forest routes and on the lower slopes of surrounding mountains are at a significantly higher risk.

Many of the homes in the St. Maries area were constructed with building materials and landscaping techniques unfavorable for protecting them against wildfire. Individual home site evaluations can increase homeowners' awareness and improve the survivability of structures in the event of a wildfire. Creating a defensible space around structures can significantly reduce the potential loss of life and property. This can be accomplished by individual residents by removing or pruning trees nearby or overhanging the home, keeping the area clear of surface fuels, and locating wood piles, propane tanks, and other flammable objects away from the home. Assessments of homes or subdivisions in the outlying areas can address the issue of escape routes and home defensibility characteristics. Educating homeowners in techniques for protecting their property is critical in areas where heavy fuels are present.

The sub-communities making up the greater St. Maries area should focus on many moderate to large projects that will increase the safety of citizens and property in the event of a wildfire emergency. Smaller projects could include providing signage and weight rating information at all bridge crossings and cattle guards, identifying dead end roads, signing escape routes, and pruning trees around power lines. Thinning or grazing on public lands near the wildland urban interface can reduce fuel build ups; thus decreasing the likelihood of a wildfire reaching the community. It is also important that people recognize and follow rules concerning campfires and trail restrictions in designated recreation areas. Some of the larger projects include:

4.5.3.8.3.1 Goose Haven Lake

Most of the homes around Goose Haven Lake are at low risk of wildland fire. These residences are generally located in grassy areas near the lake. The timbered slopes on the east side of the lake have been harvested; thus, decreasing the likelihood of fire reaching homes.

Recommendations:

1. Maintain previously thinned forested stands along on the east side of Goose Haven Lake by periodically removing accumulated surface fuels and regeneration
2. Remove slash, regeneration, and other surface fuels from the understory in harvested areas
3. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
4. Educate property owners about maintaining a defensible space around homes near timbered areas by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.8.3.2 State Highway 3 (North of St. Maries)

Homes located on the south side of State Highway 3 north of St. Maries are at low risk of experiencing a wildland fire; however, those on the north side of the road, especially homes on forest routes traveling up slope, are at higher risk. Many of these homes abut or are surrounded by wildland fuels in addition to being primarily accessed by dead end driveways.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a fire resistant buffer along both edges of secondary roads that access residences on the north side of State Highway 3 north of St. Maries

3. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
4. Continue construction of dead end secondary roads that access residences on the north side of State Highway 3 north of St. Maries to provide at least one additional escape route
5. Prune trees away from power line corridors
6. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
7. Remove slash, regeneration, and other surface fuels from the understory in harvested areas
8. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
9. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.8.3.3 River Pine Estates

The majority of homes in the River Pine Estates are at low risk of wildfire; however, those homes located on timbered, dead end spur roads are at higher risk. Many of the homes on these higher risk roads are difficult and dangerous for emergency equipment and personnel to access. Furthermore, some residences on these spur roads and on the south end of the subdivision abut or mingle with wildland fuels.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Continue construction of spur roads to provide at least one additional escape route
3. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
4. Create a fire resistant buffer along both edges on applicable sections of spur roads
5. Remove slash, regeneration, and other surface fuels from the understory in harvested areas
6. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
7. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
8. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.8.3.4 Highland Springs

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a fire resistant buffer along both edges of Highland Springs Road and applicable sections of St. Maries River Road
3. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
4. Widen switchbacks and create more turnouts on Highland Springs Road
5. Widen Highland Springs Road at driveway entrances so large emergency vehicles have enough room to make a full turn or reconstruct driveways to be more perpendicular to the main access route
6. Precommercial thin patches of regeneration near homes
7. Maintain entire Highland Springs Road loop to provide an alternate escape route (may include maintenance on Nuthatch Road)
8. Prune trees away from power line corridors
9. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
10. Remove slash, regeneration, and other surface fuels from the understory in harvested areas
11. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
12. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.8.3.5 Hells Gulch

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a fire resistant buffer along both edges of Hells Gulch Road and secondary roads that access residences
3. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
4. Remove encroaching regeneration from established pastureland surrounding homes
5. Create more turnouts on Hells Gulch Road
6. Prune trees away from power line corridors
7. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
8. Remove slash, regeneration, and other surface fuels from the understory in harvested areas

9. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
10. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.8.3.6 Cassandra Hills

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a fire resistant buffer along both edges of Cassandra Hills Road and along secondary roads that access residences
3. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
4. Continue construction of Cassandra Hills Road to provide at least one additional escape route
5. Create more turnouts and widen switchbacks on Cassandra Hills Road
6. Prune trees away from power line corridors
7. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
8. Remove slash, regeneration, and other surface fuels from the understory in harvested areas
9. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
10. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.8.3.7 Evergreen Terrace

Many of the homes in the Evergreen Terrace subdivision are surrounded by wildland fuels in addition to being located on dead end roads; thus, the fire risk to these residents and their property is fairly high. Although this subdivision is situated near the bottom of the slope, fuels and recreational use in the area increase the fire risk.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identifies as having risk, which may include thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along both edges on applicable sections of Jacot Road and the outside perimeter of dead end roads to create a buffer around residences
4. Prune trees away from power line corridors

5. Remove slash, regeneration, and other surface fuels from the understory in harvested areas
6. Continue construction of dead end roads to create loop roads and provide at least one additional escape route to State Highway 3
7. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
8. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
9. Educate property owners about maintaining a defensible space around homes by thinning trees and shrubs, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.8.3.8 Cherry Creek Road

Many of the homes in the Cherry Creek drainage are located in areas at high risk due to the steep, timbered slopes and one-way in, one-way out driveways. Bridges on private roads are generally narrow and lack weight rating information. Some residences are protected by grasses in the valley bottom; however, many directly abut or mingle with wildland fuels.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may include thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along both edges of Cherry Creek Road and on private driveways
4. Erect signs identifying the escape route on unrestricted forest routes to the south connecting with the Benewah Road
5. Create more and widen existing turnouts on Cherry Creek Road
6. Prune trees away from power line corridors
7. Remove slash, regeneration, and other surface fuels from harvested areas
8. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
9. Sign and provide weight rating information on all bridge crossings
10. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
11. Educate property owners about maintaining a defensible space around homes by thinning trees, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.5.3.8.3.9 Shay Hill

Homes in the Shay Hill area are scattered all along Shay Hill Road on this steep north aspect slope. Much of this area has been harvested; however, some homes abut or mingle with wildland fuels. Additionally, many of these residences are accessed by one-way in, one-way out, private driveways. Moderate slash build ups in harvested areas also contributes to the fairly high fire risk to these homes.

Recommendations:

1. Perform individual home site evaluations to identify and prioritize high risk homes and help residents develop a plan that will effectively reduce their property's risk of ignition
2. Create a defensible space around homes and structures identified as having risk, which may included thinning, pruning, mowing, etc.
3. Create a fire resistant buffer along both edges on applicable sections of Shay Hill Road and on private drives
4. Maintain previously thinned forested stands near homes by periodically removing accumulated surface fuels and regeneration
5. Remove slash, regeneration, and other surface fuels from harvested areas
6. Prune trees away from power line corridors
7. Create more and widen existing turnouts on Shay Hill Road
8. Identify all dead end roads and assess the ability of emergency vehicles to safely access residences
9. Educate homeowners of the risk of wildfire and precautions they can take to protect their families and property such as using firesafe building materials and landscaping techniques and planning escape routes
10. Educate property owners about maintaining a defensible space around homes by thinning trees, pruning branches, and keeping the area clear of surface fuels and flammable objects such as wood piles or propane tanks

4.6 Fire Fighting Resources and Capabilities

The Fire Fighting Resources and Capabilities information provided in this section (3.4) is a summary of information provided by the Rural Fire Chiefs or Representatives of the Wildland Fire Fighting Agencies listed. Each organization completed a survey with written responses. Their answers to a variety of questions are summarized here. ***In an effort to correctly portray their observations, little editing to their responses has occurred.*** These summaries indicate their perceptions and information summaries.

4.6.1 Wildland Fire Districts

4.6.1.1 Idaho Department of Lands, St. Joe Area Office

Arlo Slack, Fire Warden
Idaho Department of Lands
St. Maries, Idaho 83861
(208) 245-4551

The St. Joe Area office provides wildland fire protection on over 500,000 acres of state, federal, private and tribal lands throughout its protection area. Protection on non-state lands is by fire protection levies or by exchange of equal area protection on federal and tribal lands. The IDL provides seven-day coverage throughout the fire season, with 18 seasonal employees. The IDL works with the Forest Service and the Tribal Government in issuing burning permits throughout the closed burning season from May 10th to October 20th.

Resources:

- 1999 Ford F-450 4x4 Type 6 Engine, 300-gallon capacity.
- 2002 Ford F-450 4x4 Type 6 Engine, 300-gallon capacity.
- 1975 Dodge Type 4 Engine, 500-gallon capacity.
- 1990 GMC Type 4 Engine, 750-gallon capacity.
- 1983 Ford C-7000 Water Tender, 1200-gallon capacity.
- 1990 Cat D-4 Dozer with transport.

Other suppression resources such as helicopters and retardant planes are available by request through Coeur d'Alene Dispatch.

Cooperative Agreements: The St. Joe Area Office has mutual aid agreements with the USFS St. Joe District, St. Joe National Forest, the Coeur d'Alene Tribe Fire Management, the CPTPA, as well as with all fire departments throughout Benewah County.

Potential Resource Needs: Recruitment and retention of high quality, trained firefighters has been a challenge for the Fire Management program. The IDL cannot compete with wages paid by federal agencies. As a consequence, most employees leave the IDL after one or two seasons. The rapid turn over in employees makes it difficult to retain quality, seasoned employees.

4.6.1.2 Coeur d'Alene Tribal Forestry/ Fire Management Rural Fire Districts

Tom Pakootas, Fire Management Officer
Coeur d'Alene Tribe
P.O. Box 408
Plummer, Idaho 83851
(208) 686-5306

The Coeur d'Alene Tribe provides wildland fire protection on all state, private and federal lands within its protection boundary.

Resources:

- 1996 Ford 4x4 Type 6 Engine, 300-gallon capacity.
- 2003 Ford 4x4 Type 6 Engine, 200-gallon capacity.
- 1987 International Type 5 Engine, 600-gallon capacity.
- 1994 International Type 4 Engine, 750-gallon capacity with foam capabilities.
- 1985 Chevrolet 4x4 Type 6, 150-gallon capacity.
- 1968 D4 Cat Dozer.
- 1985 D7 Cat Dozer.

4.6.1.3 Potlatch Corporation Fire Protection

Jim Shubert, Fire Chief
2200 Railroad Avenue
St. Maries, Idaho 83861
(208) 245-7559
(208) 582-0989 cell

Potlatch Corporation Fire Protection has primary fire protection for the mill in St. Maries. The corporation also has mutual agreements with surrounding structural and wildland fire protection districts.

Resources:

- 1971 Heiser Class A Pumper. 1,500 gpm with 500-gallon tank.
- 1972 KW Water Tender. 500 gpm with 3,000-gallon tank.
- 1979 Chevrolet Type 6 engine. 95 gpm with 300-gallon tank.

Cooperative Agreements:

The Potlatch Corporation Fire Protection maintains mutual aid agreements for structural protection with Gateway (Plummer) Fire, Tensed Fire, Worley and St. Maries City Fire Department. Potlatch also has an emergency equipment agreement with the St. Maries IDL and the USFS St. Joe National Forest.

4.6.1.4 St. Joe Ranger District, St. Joe National Forest.

Chuck Mark, District Ranger

St. Maries Office
Sam Gibbons, Assistant Fire Management Officer
Physical address: Federal Building
St. Maries, Idaho
Mailing address: P.O. Box 407
St. Maries, Idaho 83861-0407
Telephone: (208) 245-2531

Avery Office
Jim Bartlett, Fire Management Officer
Mark Smith, Assistant Fire Management Officer
HC Box 1
Avery, Idaho 83802-9702
Telephone: (208) 245-4517

Clarkia Work Center
54495 Highway 3
Clarkia, Idaho 83812
Telephone: (208) 245-1134

The St. Joe Ranger District has primary wildland fire suppression within Shoshone County. Forest Service lands within Benewah County are protected under agreement by the Idaho

Department of Lands. However, the St. Joe District will provide assistance to cooperators when requested through Coeur d'Alene Dispatch.

The St. Joe Ranger District's initial attack resources are located in Avery and at the Clarkia Work Center. The districts provides seven day coverage from July 1 through September 30 of the year.

Resources:

Clarkia Work Center: 10 personnel on seven-day coverage throughout the fire season.

- Type 4 Wildland Engine, 750 gallons
- Type 6 Wildland Engine, 300 gallons
- Five-person Initial Attack Module

Avery Ranger Station: 21 personnel on seven-day coverage throughout the fire season.

- Type 4 Wildland Engine, 750 gallons
- Type 4 Wildland Engine, 750 gallons
- Type 6 Wildland Engine, 300 gallons
- Five-person Initial Attack Module
- Type 7 Wildland Patrol, 75 Gallons (Fire Prevention Technician)

Other St. Joe Forest resources are available through Coeur d'Alene Dispatch, including air tankers, several helicopters, and Type 1 and 2 Incident Management Teams for large, complex extended attack fires. One Type 3 Incident Management Team can be staffed locally between the St. Maries IDL and the St. Joe Ranger District.

Cooperative Agreements: The St. Joe Ranger District in place cooperative agreements with the St. Maries IDL.

4.6.2 Rural Fire Districts

4.6.2.1 St. Maries Fire Protection District

Larry Naccarato, Chief

St. Maries Station
220 South 9th Street
St. Maries, Idaho 83861
(208) 245-5253

O'Gara Station
2629 O'Gara Road
Harrison, Idaho 83833
(208) 689-3137

Harrison Station
105 Coeur d'Alene Avenue
Harrison, Idaho 83833
(208) 689-9234

The St. Maries Fire Protection District provides structural protection over 78 square miles. The district boundaries roughly run from Flat Creek on Highway 3, north on Highway 97 on the east side of Coeur d'Alene Lake a few miles beyond Harrison and to mile marker 100 on Highway 3. The district extends roughly from Heyburn State Park to the west, out three miles on the St Joe Highway to the east . The Fire Protection District provides primarily structural protection. However, the personnel will engage wildland and grass fires as needed in order to protect structures. Once wildland protection agency is on scene, St. Maries FPD will generally turn command over to the responsible agency.

One full-time Chief and two part-time Assistant Chiefs staff the district, along with approximately 45 volunteers.

Resources:

St. Maries Station

- Engine 1520 1979 Ford f-700, 1,000 gpm pump, 500-gallon tank.
- Engine 1522 2002 HME Central States, 1,250 gpm pump, 1,000-gallon tank.
- Engine 1530 1983 Chevrolet Crew-cab, 750 gpm pump, no water.
- Tender 1560 1973 Kenworth Water Tender, 500 gpm pump, 3,000-gallon tank.
- Rescue 1582 1983 Ford F-800, Rescue Unit, 250 gpm, 500-gallon tank.
- Command 1501 1988 GMC Blazer, Command Vehicle.

O'Gara Station

- Engine 1521 1986 Ford C-8000, 1,250 gpm pump, 1000-gallon tank.
- Rescue 1583 1985 Dodge Crew-cab, Extrication.
- Brush 1550 1973 Ford F-250, 50 gpm pump, 200-gallon tank.
- Support 1596 1983 GMC Hazmat Supply Vehicle.
- Tender 1561 1968 Kasier, 100 gpm pump, 1,000-gallon tank.

Harrison Station

- Engine 1531 1978 Ward LaFrance, 750 gpm pump, 600-gallon tank.
- Rescue 1581 1983 Chevrolet K-30, Extrication Unit.

Cooperative Agreements: St. Maries FPD maintains mutual aid agreements with Fernwood FPD, Plummer FPD, East Side FPD, St. Maries IDL, Potlatch Corporation Fire Protection, Whorley FPD, and Tensed FD.

Resource Needs: St. Maries FPD is in need of one Type 3-6 brush vehicle for each station. At present, the department only has one brush engine for the entire district. Structural engines are generally ill-suited an ineffective in wildland fire response, increasing the potential for wildland fires to transition to structure fires.

The Department is currently in the planning process for construction of a new station at 3rd and Jefferson in St. Maries. The current plan calls for a 70'x70' facility with four drive through, double bays for apparatus. The new building will also include a large training room that may also double as a community events gathering spot, with a small kitchen.

There has been some discussion of equipping the facility with the necessary communication capabilities for self-contained fire dispatch during incidents. At current, the Sheriff's Office handles all dispatching, previous to and during an incident. This can lead to excessive radio traffic and can easily overwhelm the dispatcher. Adopting an operational procedure which shifts

fire dispatch directly to the department during on-going incidents may help to relieve the burden on the Sheriff's dispatch.

Furthermore, the station could function as a back-up dispatch for the Sheriff's Office in the event the Sheriff's buildings were to become unusable. This would maintain emergency communications throughout the County, increasing safety and effectiveness of all emergency services.

4.6.2.2 Tensed Fire Department

Shane Sanford, Chief
P.O. Box 98
Tensed, Idaho 83870
(208) 274-2065

The Tensed Fire Department provides structure protection throughout the district. The Department will engage wildland fire in order to protect structures that could be threatened by wildland fire spread. The responsible wildland fire protection agency will generally assume responsibility for wildland fires once they arrive on scene. The District boundaries are mapped in Appendix I.

Resources:

- Truck 1821 Class A 1,000 gpm Pumper with 1,000-gallon tank.
- Truck 1851 Type 6 4x4 Brush Engine, 300-gallon tank with 125 gpm.
- Truck 1852 Type 4 4x4 Brush Engine, 1,250-gallon tank with 250 gpm.
- Truck 1860 Water Tender, 1,800-gallon tank and agricultural pump.

Cooperative Agreements: Tensed Fire Department maintains mutual aid agreements with Gateway FPD and the Coeur d'Alene Tribe.

Potential Resource Needs: Tensed Fire Department is in need of resources to augment water supply and water handling capabilities. The Department currently does not have an efficient and effective means to of drafting from undeveloped water sources. The Department is currently investigating the possibility of building a high volume pumper truck with the capability of drafting from a variety of unimproved water sources such as ponds and streams.

4.6.2.3 Gateway Fire Protection District

Michael Meagher, Chief
P.O. Box 328
Plummer, Idaho 83851
Telephone: (208) 686-9049

The Gateway Fire Protection District provides structure protection throughout the district. The District will engage wildland fire in order to protect structures that could be threatened by wildland fire spread. The responsible wildland fire protection agency will generally assume responsibility for wildland fires once they arrive on scene.

Resources:

- Type 6 Brush Engine, 300-gallon tank, 240 gpm with foam capabilities.

- Type 6 Brush Engine, 450-gallon tank, 240gpm with foam capabilities.
- 4,500-gallon water tender.
- Class A 1,250 gpm Pumper with Class A foam.
- 1 rescue vehicle

Cooperative Agreements: Gateway FPD maintains mutual aid agreements with St. Maries IDL, St. Maries FPD, Tensed Fire, Worley Fire and the Coeur d'Alene Tribe.

Potential Resource Needs: Gateway FPD is outgrowing the capacity of the current fire station. The current station does not provide adequate room for training needs and is at capacity for housing of apparatus. It is expected that the needs of the community will increase as improvements along Highway 95 continue. Recently, 3,000 acres off the Minaloosa Road have recently been sold and will likely be targeted for subdivision. Present district capabilities would be insufficient to adequately address the needs of such growth.

The District is presently in need of wildland fire protective clothing and suppression tools, such as pulaskis, combination tools, bladder bags etc. The district is also in need of wildland fire training.

4.6.2.4 Fernwood Fire Department

David McQueen, Chief
Ed Hardman, Assistant Chief
64200 Highway 3
Fernwood, Idaho 83850
Telephone: (208) 245-1901

The Fernwood Fire Department was formed in 1993 to meet the needs of the local community. The Department is a volunteer department with 14 members. The department provides structural fire protection within the district. The department will engage wildland fire if the fire is threatening homes or structures. Wildland fires are typically turned over to the IDL once on scene.

Resources:

- 1988 Spartan FMC Class A Pumper, 1,750 gpm and 750-gallon tank.
- 1974 Peterbuilt Water Tender, 4,300-gallon tank compete with pump and fittings.
- 1953 GMC Howard Cooper Class A Pumper, 750 gpm and 750-gallon tank.

Cooperative Agreements: Fernwood Fire Department currently maintains a cooperative agreement with the St. Maries IDL.

Potential Resource Needs: The Fernwood Fire Department is in need of a wildland brush truck. At present, the district does not have the appropriate equipment to safely and effectively engage a wildland fire. Access issues in many areas of the district also make access with large structural trucks impossible. In such cases a smaller, more maneuverable 4x4 wildland truck may the only vehicle capable of accessing such structures.

The district has also identified the need for wildland training. At present, the majority of department members do not have Red Cards. Retention of trained personnel is also an issue.

The district also has some minor communication issues with the current repeater. Bleed over and miscellaneous radio traffic is quite common, impairing department operations.

4.7 Issues Facing Benewah County Fire Protection

4.7.1 Creation of Emida Fire District

Currently, the community of Emida and homes in the surrounding area including many of those on Sanders Road are unprotected by any formal structural fire protection district. The Idaho Department of Lands provides wildland fire protection; however, response time for emergency personnel from Fernwood or St. Maries would be relatively slow. Due to the combination of timber and rangelands, a wildfire could potentially spread to residential areas before suppression resources arrived. Communities and private landowners need to take action to create a new fire district in order to provide fire protection resources and personnel to the citizens of Emida and the surrounding area.

4.7.2 Creation of Benewah-Alder Creek Flats Fire District

Residents near the rural communities of Benewah and Alder Creek Flats are without any form of structural fire protection. The Idaho Department of Lands provides wildland fire protection in the area; however, the response time for resources from St. Maries or Plummer is considerable. Intense wildfires could easily move into the settled areas prior to the arrival of suppression resources. Additionally, alternate escape routes are limited and may become unsafe for evacuees or emergency response personnel; therefore, rapid response may be imperative to the survival of citizens in the event of a fire.

4.7.3 Merger of Gateway & Tensed Fire, Annex of Benewah

During the conducting of the public meetings, the Fire Chiefs for Gateway Fire District and the Tensed Fire District discussed with those in attendance the possibility of merging the two districts into a larger district. During the merger, it would be possible to add to the boundaries of the Tensed-Gateway District additional coverage to include the communities of Benewah, Emida, and those homes otherwise not covered between the current boundaries of the Gateway Fire District and the St. Maries Fire District. It was pointed out, however, that this expansion would require additional stations, equipment, and volunteers to make it happen. However, the district personnel present at this public meeting felt it was a real possibility. From the planning standpoint, there are many homes in this region that are not otherwise protected for house and structure fires. If the landowners are favorable to this merger and expansion of the district, it would be consistent with the goals and objectives of this planning document and the County's comprehensive plan.

4.7.4 Accessibility

Fire Chiefs throughout the County have identified home accessibility issues as a primary concern in Benewah County. It appears as through many homes and driveways have been constructed without regard to access requirements of large emergency vehicles. Lack of accessibility precludes engagement by suppression resources. Many homes within fire protection districts in Benewah County effectively have no fire protection simply because access is not possible or is potentially dangerous. Enforcement of Building Codes, including road and driveway construction standards for fire apparatus established by the International Fire Code would prevent accessibility issues in new developments.

4.7.5 Rochat Creek Watershed

The community of St. Maries is primarily dependent on surface runoff from the Rochat Creek Watershed for their water resources. Water is collected near the mouth of the drainage, treated, and then piped to homes and businesses. A severe wildfire in this watershed could cause serious injury to this resource by removing vegetation, creating ash and sediments, and impairing soil properties. Fire mitigation treatments prior to a fire event are a high priority and are imperative to conserving the functionality of the watershed following a wildland fire.

4.7.6 Adams Creek Watershed

The community Fernwood uses the Adams Creek Watershed as its primary source of water. Water is collected in two small reservoirs, treated, and then piped to area homes and businesses. Removal of vegetation, ash, sedimentation, and other after effects of a severe wildfire could cause serious damage to this small watershed.

The current surface water system has been updated to standards set by the Fernwood Fire Department. As a back up, Fernwood has installed a municipal well system insuring that access to water will not be compromised in drought years or in the event of an emergency. Fire mitigation treatments to preserve this water resource is a high priority.

4.8 Current Wildfire Mitigation Activities in Benewah County

Idaho Department of Lands: Idaho Department of Lands officials at the Heyburn State Park have created a management plan that emphasizes fire mitigation activities around structures and restoration of historic ponderosa pine stands throughout the park area. As part of this plan, they have recently created a 300 foot buffer strip on the east aspect slope behind the Chatcolet residential area. Most of the trees within the buffer were harvested and a controlled burn was implemented to remove remaining slash and brush. It is there intention to maintain this zone as a lower fire risk area in order to protect lives and structures from oncoming wildfires. An additional 300 foot buffer will be harvested to protect residences on the eastern shore of Benewah Lake.

In order to restore historic ponderosa pine stands to a more natural state, park officials have applied small harvest operations that heavily favor large pine and to a smaller extent healthy western larch. Additionally, low intensity controlled underburns have been conducted to remove slash, brush, and most of the regeneration from the understory. These harvests and prescribed burns will continue throughout the park on a rotational cycle, so that it better represents the historic fire frequency. These pro-active management treatments not only increase the overall health of the forest, but they also significantly reduce the fire risk by reducing accumulations of hazardous fuels.

In addition to these projects, the Idaho Department of Lands is also working on hazard reduction projects in the Fernwood-Santa area. Two of these, the Wilson Mountain Unit and the Finn Dam Unit, were administered in 1998 and 1999, respectively. Another project, located north of the residential developments in the Pokey Creek drainage, is slated for 2004. All three of these project units were strategically located and designed to reduce fuel loading, and subsequently the fire hazard, in the wildland urban interface.

Coeur d'Alene Tribal Agency: The Coeur d'Alene Tribe has begun an aggressive program to reduce fire potential within the reservation boundaries. The objective is to restore forest stands to their historic fire regimes. This work is currently funded through the National Fire Plan and may receive additional funding from other federal programs in the future. Activities to date have included hazardous fuel reduction (HFR) projects on forest lands with sparse home density and

wildland urban interface projects in the more densely populated areas. These projects reduce existing fuels and create fire breaks and defensible space to decrease the potential for catastrophic fire. These activities have been initiated on lands owned or held in trust by the tribe and may be expanded to private lands within the reservation.

The tribe is planning on treating approximately 1500 acres per year through mechanical and prescribed fire depending on available funding. These treated areas will be re-entered periodically for fuels maintenance projects using low intensity prescribed fire or mechanical methods to restore the historic regime.

The tribe has inventoried and mapped all structures within the county and made run books, maps, and GIS information available to the county. This data base provides information on the access to and pertinent characteristics of each structure and includes digital photos of the structure. Additional funding is needed to supply this information and systems to all fire districts. The cost is estimated at $14,000.00 per station.

The tribe has sought additional funds for homeowner education/inspection and will cooperate with the county for work outside the reservation. Additional defensible space projects are expected to stem from these visits. Cost share funds are also being sought for additional defensible space projects.

St. Joe Ranger District: The St. Joe Ranger District has recently implemented several fire hazard reduction projects in Benewah County including the Get Shorty and Willow Creek projects in which they commercially thinned densely timbered areas and applied a prescribed burn. Two more projects are slated for completion in the near future; one slightly north of the North-South Ski Bowl and another on the south side of Sanders Road. Management activities will include non-commercial thinning, machine and hand piling, grinding and chipping of slash, and pile burning. The treatments will be focused on areas adjacent to improvements and will be designed to provide an area of lessened ground and ladder fuels to reduce the threat of crown fire moving onto private property and provide firefighters with areas of opportunity to make effective use of aerial and ground-based suppression tools. Future projects will address Forest Service ownership in the St. Maries and St. Joe City municipal watersheds.

Bureau of Land Management: The BLM is currently working on a 55 acre timber sale and fuels reduction project in the Tingley Springs (St. Joe Baldy) area. This unit is a high wildland urban interface priority due to its adjacency to a BLM recreation campground and a major radio communications tower relay site. Treatment focuses on thinning of hazardous fuels within and around the campground and surrounding the radio tower. A lop and scatter method will be used for disposal of slash in addition to mechanical piling and burning.